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FOREWORD

This document, D2-14934-4, entitled "WS-133A Maintainability Progress Report", is submitted to BSD/STL in accordance with the requirements of Technical Directive 62-4488, "Maintainability Requirement Program," dated 28 May 1962.

REFERENCES

a. MIL-M-26512B, "Maintainability Requirements for Aerospace Systems and Equipment," dated 23 March 1962.

b. 6120-7822-DU-RD1, "Maintainability Criteria, Preliminary," dated 16 March 1962.

c. T. D. 62-4488, "Maintainability Requirements Program," dated 28 May 1962.

d. CCN 448, dated 28 May 1962.

e. CCP 803, dated 5 October 1962.

f. D2-14475, "WS-133A Maintainability Program Plan."

g. D2-4747-1, "Maintainability Design Criteria for Minuteman Electronic Equipment.

h. D2-4747-2, "Maintainability Design Criteria for Minuteman Transportation and Handling Equipment."

i. D2-4747-3, "Maintainability Design Criteria for Minuteman Facilities and Facilities Equipment."

j. Boeing letter 2-5261-2-249, dated December 20, 1962, with enclosure, "List of WS-133A Equipment Selected for Maintainability Demonstrations."

h. D2-14256 "Minuteman Maintainability Guide for Design Criteria."

TABLE OF CONTENTS

1.0 SCOPE

This document constitutes The Boeing Company's monthly status report to the Air Force on Maintainability Activities pertaining to the WS-133A Minuteman Weapon System. The Maintainability Program is a contractual obligation of The Boeing Company under CCN 448 of Contract Number AF 04(648)-289.

2.0 PURPOSE

The Air Force has requested that The Boeing Company develop Maintainability Criteria and conduct a Maintainability Program in accordance with this criteria. This is being accomplished in accordance with the WS-133A Maintainability Program Plan (D2-14475) based on the requirements set forth in MIL-M-26512B as amended by Technical Directive 62-4488.

The purpose of this document is to report to the appropriate Air Force agencies the progress achieved in execution of the Maintainability Plan and to detail the work accomplished during the reporting period.

3.0 INTRODUCTION

This document is the fourth of the monthly reports that outline the progress achieved by the contractor in the WS-133A Maintainability Program. The first report covered the period from 18 October 1962 thru 31 December 1962. Each succeeding report covers a monthly period from the first thru the last day of each month. This report covers the month of March 1963.

The Maintainability Program Plan for the Minuteman Weapon System is two-fold; it provides both a Design Review and Evaluation Plan and a Test and Demonstration Plan. The monthly reports contain status of progress and problem areas encountered in each of these plans.

4.0 MAINTAINABILITY REVIEW AND EVALUATION

4.1 MAINTAINABILITY REVIEWS

4.1.1 Program

As part of the Maintainability (M) effort under CCP-803 and the WS-133A Maintainability Program Plan (D2-14475), specific figure "A" items are being reviewed for M and soldering in accordance with criteria as specified in 6120-7822-DU-RD1. Major M problem areas revealed by these reviews are reported through initiation of a Maintainability Action Request (MAR). Minor M problems of the product improvement type are reported to the Design Project through a Maintainability Review Report (MRR).

4.1.2 Figure "A" Items To Be Reviewed

a) The following figure "A" items were selected by the customer for M review:

1) 1207 Drier, Air Compressor;

2) 1281 Fault Locator Set, AN/GSM-69;

3) 1288 Battery, Storage;

4) 1337 Distribution Box;

5) 1338 Console, Communications Control;

6) 1367 Motor/Generator, PU-521;

7) 1380 Distribution Box;

8) 1385 Distribution Box;

9) 1412 Signal Assembly, Voice Reporting;

10) 1423 Antenna Group, AN/GRA-72;

11) 1424 Antenna, AS-1213/GRC-113;

12) 1425 Antenna System, H.F., Receiving & Transmitting;

13) 1425 Antenna, H.F., Transmitting, Hardened;

4.1.2 (Continued)

14) 1607 Security and Alarm Set;

15) 3007 Test-Set, Explosive Set Circuitry;

16) 3092 Test-Set, Programmer Group;

17) 4018 Adapter AN/GSM-61;

18) 4043 Elevator, Work Cage;

19) 4152 Test Equipment; Electrical Facility, Base Maintenance;

20) 4220 Test-Set, Relay;

21) 4252 CIV Set, AN/GSQ-65;

22) 4344 Fault Locator, SCN Cable;

23) 4451 Controller, Azimuth Drive;

24) 4487 Command Signal Simulator;

25) 4489 Simulator Set, Electrical Functions;

27) 4491 Start-Up Unit;

28) 4515 Static Frequency Changer;

29) 4523 Common Power Supply;

30) 4539 Test-Set, VRSA;

31) 4601 Function Simulator; H.F./UHF Radio;

32) 4632 Test-Set, Electric Power, LF;

33) 4633 Test-Set, Electric Power, LCF.

b) The Minutes of the Maintainability Review Meetings held at Boeing on 9 January 1962, and at RCA, on 16 January 1962 (file

4.1.2 (Continued)

No. 2-6331-0-366, dated 7 February 1962) listed certain figure "A" items which were not reviewed due to non-availability of hardware. These items are being reviewed on a schedule compatible with equipment availability.

c) Other figure "A" items are being reviewed as problem areas are identified by review of Field Service Reports, System Test Action Requests, Unsatisfactory Reports, M Evaluation/Observation (E/O) Reports, and other field reports prepared by Boeing organizations.

4.2 MAINTAINABILITY ACTION REQUESTS (MAR)

Status of all MAR's initiated to date is contained in the MAR Status Summary Chart (See Section 6.2).

4.3 MAINTAINABILITY REVIEW REPORTS (MRR)

During the reporting period MRR's on the following equipments were completed:

a) Electric Surge Arrestor Sets, Figure A 1373 and 1374.

b) Test Set, Alarm Set, Figure A 3109, revision A.

c) Test Set, Consoles, Figure A 3013.

d) Test Set, Telephone, Figure A 4388.

The MRR's have been forwarded to the cognizant design group for consideration as product improvement items. (See Maintainability Review Status Summary Chart Section 6.1).

4.4 FIELD LIAISON REPORTS

Surveillance of operational activities to obtain additional Maintainability data is being accomplished thru review of STAR's (Systems Test Action Requests), FSR's (Field Service Reports), UR's (Unsatisfactory Reports), and BIAR's (Base Installation Action Requests).

4.4.1 MAINTAINABILITY SURVEILLANCE

In those cases where reviews indicate a maintainability problem M Engineers are assigned to work the problem with the design. organization. If the proposed solutions to problems reported thru the above Field Liaison Reports do not satisfy maintainability requirements then a MAR or MRR will be initiated as appropriate.

5.0 MAINTAINABILITY TEST AND DEMONSTRATION

5.1 TEST AND DEMONSTRATION PLAN

Tests and performance demonstrations already scheduled for other purposes at the STP III installation, Vandenberg Air Force Base, and Minuteman Wing installations are being utilized to provide as many Maintainability demonstrations as possible. Maintainability Engineers are participating in those tests and demonstrations which have inherent Maintainability significance, and are documenting their observations.

Equipment items with Maintainability features having major impact upon the operation and maintenance of the Weapon System have been selected. Only demonstrations involving these items are being documented, pending both BSD approval of the equipment list and contractual coverage of any additional tests considered necessary by the Customer.

5.2 TEST AND DEMONSTRATION EQUIPMENT LIST

The "List of WS-133A Equipment Selected for Maintainability Demonstrations" was transmitted to BSD by letter 2-5261-2-249, dated December 20, 1962. This list identified applicable maintenance operations which may be observed during remaining scheduled test and demonstration activities, to provide Maintainability demonstrations of the selected Figure "A" equipment items. It also identified, for each selected equipment item, those maintenance operations which should be demonstrated but were not at that time known to be included within any scheduled test or demonstration.

The "Demonstration Requirements Status Summary" (Section 6.3 of this report) provides monthly amplification and updating of the "List of WS-133A Equipment Selected for Maintainability Demonstrations." It contains a tabulation of the maintenance operations which should be demonstrated for each selected "Figure A" equipment item, and identifies any scheduled events which are known to include these operations. It also contains a completion record, which provides completion dates and observer report numbers for all demonstrations which have been accomplished during current and previous reporting periods.

Maintainability Engineers will continue to participate in the scheduled demonstration events listed in the "Demonstration Requirements Status Summary," pending further direction from BSD.

5.3 MAINTAINABILITY EVALUATION/OBSERVATION (E/O) REPORTS

E/O Reports are prepared for both "dynamic" observations of maintenance and "static" evaluation of M design. The reports provide the basis for subsequent corrective action on any observed deficiencies, and are submitted monthly in this document series as a demonstration record.

a) A "Static" evaluation is a complete visual inspection made on a non-interference basis whenever equipment becomes conveniently available. "Dynamic" observations are made during applicable maintenance operations using actual equipment. In either case an E/O Report documents the demonstration results.

b) Each completed E/O Report is evaluated by the Maintainability Engineers who have Maintainability-review responsibility for the specific "Figure A" items of equipment identified in the report. When Maintainability deficiencies are identified in a report, MAR's and/or MRR's are initiated for appropriate action.

c) Twelve E/O Reports were written during the period covered by this document: They were prepared by the Maintainability Engineers who participated in the M demonstrations. The reports are contained in Section 6.4.

6.0 REPORTS

This section contains status charts, copies of Maintainability Action Requests (MAR's), and Maintainability Evaluation/Observation (E/O) Reports.

6.1 MAINTAINABILITY REVIEW STATUS SUMMARY

The Maintainability Review Status Chart contains an up-to-date summary of all Figure A equipments reviewed in accordance with the discussion contained in Section 4. As additional Figure A items are reviewed they will be entered on this chart with notations as to action taken and date review is completed. This chart will be revised and reproduced for inclusion in each succeeding Progress Report.

MAINTAINABILITY REVIEW STATUS CHART

FIG. 'A' NO.	SUBJECT	ACTION REPORT		DATE REVIEW COMPLETED
		M AR NO.	M RR NO.	
1367	Motor-Generator, PU-521 (LCF)		1-1367	December 14, 1962
1282/1288	Battery Storage	3-1282-A1	2-1282	December 14, 1962
1243/1338	Consoles (telephone & transmitter control)		3-1243	December 14, 1962
1369	Antenna Set		4-1369	December 14, 1962
4488	Decoder Kit		5-4488	December 14, 1962
1283	Motor-Generator, PU-515	1-1283-A1	6-1283	December 21, 1962
4252	Code Inserter-Verifier Set		7-4252	December 21, 1962
1370	Lighting Equipment Group		8-1370	December 21, 1962
1201	Programmer Group		9-1201	December 21, 1962
4523	Common Power Supply		10-4523	December 24, 1962
3109	Alarm Set Test Set		11-3109	January 8, 1963
Various	Electrical Equipment Cases, MGE		12-MGE	January 18, 1963
1337	Distribution Box J-1296		13-1337	January 23, 1963
1412	Voice Reporting Signal Assembly		14-1412	January 21, 1963
6950	HSM-80C Section 49 Skirt		15-6950	January 22, 1963
1380	Distribution Box, J-1312		16-1380	January 23, 1963
3007	Test Set, Explosive Set Circuitry		17-3007	January 29, 1963
7724	NCU Zero Alignment Test Set	2-7724-A1		January 22, 1963
4018	Test Adapter Group		18-4018	February 7, 1963
4491	Start-Up Unit, LF		19-4491	February 26, 1963
3092	Test Set, Programmer Group		20-3092	February 25, 1963
4490	Simulator Set Missile Launch		21-4490	February 26, 1963
1373/1374	Electric Surge Attestor		22-1373	March 6, 1963
3109	Test Set, Alarm Set, GSM-59		23-3109 revA	March 5, 1963
3013	Test Set, Consoles		24-3013	March 12, 1963
4388	Test Set, Telephone, GTM-3		25-4388	March 21, 1963

6.2 MAR STATUS SUMMARY

The MAR Status Chart contains an up-to-date list of MAR's issued and the current status of each MAR. Copies of MAR's will be included in each monthly progress report, until such time as they are considered closed. MAR's requiring no further consideration by either the originating engineer or the organization responsible for corrective action will be closed. This status is assigned by the MAR originator only when one of the following has been achieved:

a) An authorized hardware, procedure, specification or other corrective action has been found to satisfy the MAR problem;

b) The organization responsible for action rejects the request for corrective action and the MAR originator concurs with reasons given for the rejection.

c) The MAR originator considers that the MAR requires no further action because of related actions taken, events occuring, or status changing after initiation of the MAR.

M AR STATUS CHART

M AR NO,	SUBJECT	DATE ISSUED	STATUS
1-1283-A1	DC Drive Motor Disconnect	To Be Issued	- - - - - - -
2-7724-A1	NCU Zero Alignment Test Set	January 22, 1963	Closed
3-1282-A1	Launch Facility Battery Shock Mounts	December 5, 1962	Closed

6.3 DEMONSTRATION REQUIREMENTS STATUS SUMMARY

The following Demonstration Requirements Status Summary contains an up-to-date summary of scheduled maintainability demonstration events for each selected "Figure A" equipment item. Completion dates and E/O Report numbers are listed for those demonstrations which have occurred during the current and previous reporting periods. The Summary also lists those maintenance operations which should be demonstrated but are currently "unscheduled."

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	1
1201 Programmer Group	Organizational-Level Checkout		Technical Approval Demonstration 1-18, Malmstrom AFB	11-7-62
			Technical Approval Demonstration 1-15, Vandenberg AFB	
	Organization-Level Fault Isolation		Technical Approval Demonstration 1-18, Malmstrom AFB	11-7-62
			Technical Approval Demonstration 1-15 Vandenberg AFB	
	Field-Level Checkout	Drawer A1 (Part No. -55)	Verification; T.O. 31X3-12-8-2, par. 7-11, 7-12A, 7-13	
		(Part No. -68)	Verification; T.O. 31X3-12-8-2, par. 7-11, 7-12A, 7-13	
		Drawer A2	Technical Approval Demonstration 1-14, Malmstrom AFB	
			Technical Approval Demonstration 1-11, Vandenberg AFB	
		(Part No. -44)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13	
		(Part No. -50)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13	
		(Part No. -51)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13	
		(Part No. -54)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13	

2

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
hnical Approval Demonstration , Malmstrom AFB	11-7-62	FO-1201-1	1-18-63			
hnical Approval Demonstration , Vandenberg AFB						
hnical Approval Demonstration , Malmstrom AFB	11-7-62	EO-1201-1	1-18-63			
hnical Approval Demonstration 1-13 denberg AFB						
ification; T. O. 31X3-12-8-2, par. , 7-12A, 7-13						
ification; T. O. 31X3-12-8-2, par. , 7-12A, 7-13						
hnical Approval Demonstration , Malmstrom AFB						
hnical Approval Demonstration , Vandenberg AFB						
ification; T. O. 31X3-12-8-2, par. 2A, 7-13						
ification; T. O. 31X3-12-8-2, par. 2A, 7-13						
ification; T. O. 31X3-12-8-2, par. 2A, 7-13						
ification; T. O. 31X3-12-8-2, par. 2A, 7-13						

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
(1201)	(Field-Level Checkout)	Drawer A3 (Part No. -49)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13
		(Part No. -56)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13
		(Part No. -58)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13
		(Part No. -59)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13
		Drawer A4 (Part No. -56)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13
		(Part No. -62)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13
		(Part No. -63)	Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13
		Drawer A6 (Part No. -40)	Verification; T.O. 31X3-12-8-2, par. 11-17 thru 11-23
		(Part No. -50)	Verification; T.O. 31X3-12-8-2, par. 11-17 thru 11-23
		(Part No. -51)	Verification; T.O. 31X3-12-8-2, par. 11-17 thru 11-23
		Drawer A7	Verification; T.O. 31X3-12-8-2, par. 12-15 thru 12-19

2

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	
Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13						
Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13						
Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13						
Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13						
Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13						
Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13						
Verification; T.O. 31X3-12-8-2, par. 7-12A, 7-13						
Verification; T.O. 31X3-12-8-2, par. 11-17 thru 11-23						
Verification; T.O. 31X3-12-8-2, par. 11-17 thru 11-23						
Verification; T.O. 31X3-12-8-2, par. 11-17 thru 11-23						
Verification; T.O. 31X3-12-8-2, par. 12-15 thru 12-19						

1

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
(12-1)	Field-Level Fault Isolation	Drawer A1	UNSCHEDULED
		Drawer A2	Technical Approval Demonstration 1-14, Malmstrom AFB
		Drawer A3	UNSCHEDULED
		Drawer A4	UNSCHEDULED
		Drawer A6	UNSCHEDULED
		Drawer A7	UNSCHEDULED
1211 Launcher Environmental Control System	Organizational-Level Checkout		UNSCHEDULED
	Organizational-Level Fault Isolation		UNSCHEDULED
	Organizational-Level Adjustment	Dampers D-1, D-2	UNSCHEDULED
		Dampers D-3, D-3A, D-3B	UNSCHEDULED
		Damper D-4	UNSCHEDULED
		Damper D-5	UNSCHEDULED

ONSTRATION REQUIREMENTS STAT[illegible]ARY

DEMONSTRATION EVENT	COMPLETION RECORD			
	PREVIOUS REPORT		CURRE	
	NO.	DATE	DATE COMPLETED	NC
UNSCHEDULED				
Technical Approval Demonstration 1-14, Malmstrom AFB				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				
UNSCHEDULED				

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
(1211)	(Organizational-Level Adjustment)	Switches PE-2, PE-3, PE-4	UNSCHEDULED
		Switch PE-5	UNSCHEDULED
		Pressure Regulator PC-1	UNSCHEDULED
		Flow Sensor FA-1	UNSCHEDULED
		Flow Sensor FA-2	UNSCHEDULED
		Thermostat TC-1	UNSCHEDULED
		Thermostat TC-4	UNSCHEDULED
		Thermostat TC-5	UNSCHEDULED
		Thermostat HL-1	UNSCHEDULED
		Thermostat TA-1, TA-6	UNSCHEDULED
		Thermostat TA-2, TA-5	UNSCHEDULED
		Thermostat TA-4	UNSCHEDULED
		Low Temp. Cutout	UNSCHEDULED
		Oil Pressure Cutout	UNSCHEDULED
		Pressure Reg PRV-2	UNSCHEDULED

ONSTRATION REQUIREMENTS STATUS SUMMARY

	DEMONSTRATION EVENT	COMPLETION RECORD					
		PREVIOUS			CURRENT		
		DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
PE-	UNSCHEDULED						
-5	UNSCHEDULED						
	UNSCHEDULED						
or	UNSCHEDULED						
or	UNSCHEDULED						
at	UNSCHEDULED						
at	UNSCHEDULED						
at	UNSCHEDULED						
at	UNSCHEDULED						
at -6	UNSCHEDULED						
at -5	UNSCHEDULED						
at	UNSCHEDULED						
p.	UNSCHEDULED						
ure	UNSCHEDULED						
Reg	UNSCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
(1211)	(Organizational-Level Adjustment)	Restrictors	UNSCHEDULED
		Brine Balancing	UNSCHEDULED
		Air Flow Balancing	UNSCHEDULED
		Emerg. Water Flow Balancing	UNSCHEDULED
	Organizational-Level Calibration	Pressure Gage	UNSCHEDULED
		Temperature Gage	UNSCHEDULED
	Field-Level Checkout	Chiller Unit	UNSCHEDULED
		Emerg. Cooling Unit	UNSCHEDULED
		Misc. Components	UNSCHEDULED
	Field-Level Fault Isolation	Chiller Unit	UNSCHEDULED
		Emerg. Cooling Unit	UNSCHEDULED
		Misc. Components	UNSCHEDULED

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
UNSCHEDULED						
UNSCHEDULED						
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UNSCHEDULED						

2

1

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
(1211)	Field-Level Adjustment	High Pressure Cutout	UNSCHEDULED
		Low Pressure Cutout	UNSCHEDULED
		Oil Pressure Cutout	UNSCHEDULED
		Low Temp. Cutout	UNSCHEDULED
		Damper D-1	UNSCHEDULED
		Damper D-2	UNSCHEDULED
		Switches PF-2, PE-3	UNSCHEDULED
		Pressure Reg. PC-1	UNSCHEDULED
		Restrictor RS-1	UNSCHEDULED
		Pressure Gage	UNSCHEDULED
		Temp. Gages TG-4, TG-5	UNSCHEDULED
		Restrictor RS-1A	UNSCHEDULED
		Switch PR-5A	UNSCHEDULED
		Switches PE-6A, PE-7A	UNSCHEDULED
		Thermostat TA-3	UNSCHEDULED
		Thermostat HL-2	UNSCHEDULED

ONSTRATION REQUIREMENTS STATUS SUMMARY

	DEMONSTRATION EVENT	COMPLETION RECORD					
		PREVIOUS			CURRENT		
		DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
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ire	UNSCHEDULED						
.	UNSCHEDULED						
-1	UNSCHEDULED						
-2	UNSCHEDULED						
'E-	UNSCHEDULED						
Reg	UNSCHEDULED						
	UNSCHEDULED						
	UNSCHEDULED						
ges -5	UNSCHEDULED						
	UNSCHEDULED						
-5A	UNSCHEDULED						
'E- A	UNSCHEDULED						
nt	UNSCHEDULED						
at	UNSCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
1213 Command-Status Message Processing Group (LCF)	Organizational-Level Checkout	Partial	Revalidation; T.O. 21-SM80A-2-3, par. 2-36 thru 2-37
		Complete	UNSCHEDULED
	Organizational Level Fault Isolation		UNSCHEDULED
	Field-Level Checkout	CV-1236 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		MX-3686 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		MX-3687 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		CV-1243 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		CV-1237 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		MX-3742 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		MU-446 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		CV-1249 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7
		CV-1250 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7

NSTRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Revalidation; T.O. 21-SM80A-2-3, par. 2-36 thru 2-37						
UNSCHEDULED						
UNSCHEDULED						
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7				3-6-63	EO-1213-1/ 1251-3	3-8-63
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7						
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7				3-6-63	EO-1213-1/ 1251-3	3-8-63
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7				3-6-63	EO-1213-1/ 1251-3	3-8-63
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7						
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7				3-6-63	EO-1213-1/ 1251-3	3-8-63
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7				3-6-63	EO-1213-1/ 1251-3	3-8-63
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7						
Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
(213)	Field-Level Fault Isolation	CV-1236 Drawer	UNSCHEDULED
		MX-3686 Drawer	UNSCHEDULED
		MX-3687 Drawer	UNSCHEDULED
		CV-1243 Drawer	UNSCHEDULED
		CV-1237 Drawer	UNSCHEDULED
		MX-3742 Drawer	UNSCHEDULED
		MU-446 Drawer	UNSCHEDULED
		CV-1249 Drawer	UNSCHEDULED
		CV-1250 Drawer	UNSCHEDULED
	Field-Level Adjustment	CV-1237 Drawer	Verification; T.O. 31X2-32-3-2, par. 13-4
	Inspection		UNSCHEDULED

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
Verification; T.O. 31X2-32-3-2, par. 13-4						
UNSCHEDULED				3-6-63	EO-1213-1/ 1251-3	3-8-63

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
1214, Ground Guidance and Control Liquid Cooling Equipment	Organizational-Level Checkout	System Checkout	UNSCHEDULED
		Pump Package Operation	Technical Approval Demonstration 1-15, Malmstrom AFB
		Electronic Control Amplifier	Technical Approval Demonstration 1-12, Vandenberg AFB
	Organizational-Level Fault Isolation		UNSCHEDULED
	Remove and Replace Chiller		UNSCHEDULED
	Remove and Replace Pumping Assembly		Technical Approval Demonstration 1-15, Malmstrom AFB
			Technical Approval Demonstration 1-12, Vandenberg AFB
	Field-Level Checkout	Water Chiller	Technical Approval Demonstration 1-13, Malmstrom AFB
			Verification; T.O. 35E7-35-1, par. 3-4
		Pumping Assembly	Verification; T.O. 35E7-35-1, par. 3-21
		Electronic Control Amplifier	Verification; T.O. 35E7-35-1, par. 3-30
	Field-Level Fault Isolation	Water Chiller	UNSCHEDULED
		Pumping Assembly	UNSCHEDULED
		Electronic Control Amplifier	UNSCHEDULED
	Inspection		UNSCHEDULED

TRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
UNSCHEDULED						
Technical Approval Demonstration 1-15, Malmstrom AFB						
Technical Approval Demonstration 1-12, Vandenberg AFB						
UNSCHEDULED						
UNSCHEDULED				3-13-63	EO-1214-1	3-15-63
Technical Approval Demonstration 1-15, Malmstrom AFB						
Technical Approval Demonstration 1-12, Vandenberg AFB						
Technical Approval Demonstration 1-13, Malmstrom AFB						
Verification; T.O. 35E9-35-1, par. 3-4						
Verification; T.O. 35E9-35-1, par. 3-21						
Verification; T.O. 35E9-35-1, par. 3-30						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED				3-8-63	EO-1214-1	3-8-63

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	
1228 Status-Command Message Processing Group (LF)	Organizational-Level Checkout		Technical Approval Demonstration 1-20, Malmstrom AFB Technical Approval Demonstration 1-17, Vandenberg AFB	1
	Organizational-Level Fault Isolation		Technical Approval Demonstration 1-20, Malmstrom AFB Technical Approval Demonstration 1-17, Vandenberg AFB	11-7-62
	Field-Level Checkout	MC-3775 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7	
		MX-3776 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7	
		CV-1254 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7	
		KY-411 Drawer	Verification, T.O. 31X2-32-3-2, par. 8-5, 8-7	
	Field-Level Fault Isolation	MC-3775 Drawer	UNSCHEDULED	
		MX-3776 Drawer	UNSCHEDULED	
		CV-1254 Drawer	UNSCHEDULED	
		KY-411 Drawer	UNSCHEDULED	

TRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Technical Approval Demonstration 1-20, Malmstrom AFB	11-7-62	EO-1228-1	11-29-62			
Technical Approval Demonstration 1-17, Vandenberg AFB						
Technical Approval Demonstration 1-20, Malmstrom AFB	11-7-62	EO-1228-1	11-29-62			
Technical Approval Demonstration 1-17, Vandenberg AFB						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7						
Verification, T.O. 31X2-32-3-2, par. 8-5, 8-7						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	
1243 Launch Control Console	Organizational-Level Checkout		Technical Approval Demonstration 1-22, Ellsworth AFB	
			Technical Approval Demonstration 1-20, Vandenberg AFB	1-2[illegible]-63
	Organizational-Level Fault Isolation		UNSCHEDULED	
	Field-Level Checkout	DC Power Filter Assembly	Verification; T.O. 31X3-3-9-2-1 p[illegible] 11-2	
		Telephone Xmtr. Control	Verification; T.O. 31X3-3-9-2-1, [illegible] 13-[illegible], 13-[illegible], [illegible], 13-1	
	Field-Level Fault Isolation	DC Power Filter Assembly	UNSCHEDULED	
		Telephere Xmtr. Control	UNSCHEDULED	
	Removal, Replacement, and Checkout of Launch Control Panel		Technical Approval Demonstration 1-18, Vandenberg AFB	1-29-63

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Technical Approval Demonstration 1-22, Ellsworth AFB						
Technical Approval Demonstration 1-20, Vandenberg AFB	1-2[illegible]-63	EO-1243-1	1-3[illegible]-63			
UNSCHEDULED						
Verification; T.O. 31X3-3-[illegible]-2-1 p[illegible] 11-2						
Verification; T.O. 31X3-3-9-2-1, [illegible] 13-[illegible], 13-[illegible], Fig. 13-1						
UNSCHEDULED						
UNSCHEDULED						
Technical Approval Demonstration 1-18, Vandenberg AFB	1-29-63	EO-1243-1	1-3[illegible]-63			

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	ATE PLETED
1251 Digital Data Group (LF)	Organizational-Level Checkout		Technical Approval Demonstration 1-20, Malmstrom AFB	11-7-62
	Organizational-Level Fault Isolation		Technical Approval Demonstration 1-20, Malmstrom AFB	11-7-62
	Field-Level Checkout	RT-646 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7	
		DT-252 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7	
		MX-3772 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7	
		MX-3773 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7	
		CV-1253 Drawer	Verification; T.O. 31X2-32-3-2, par. 8-5, 8-7	
	Field-Level Fault Isolation	RT-646 Drawer	UNSCHEDULED	
		DT-252 Drawer	UNSCHEDULED	
		MX-3772 Drawer	UNSCHEDULED	
		MX-3773 Drawer	UNSCHEDULED	
		CV-1253 Drawer	UNSCHEDULED	
	Field-Level Adjustment	RT-646 Drawer	Verification; T.O. 31X2-32-3-2, par. 29-8 thru Figure 29-4	
		DT-252 Drawer	Verification, T.O. 31X2-32-3-2, par. 19-10 thru Fig. 19-3	

RATION REQUIREMENTS STATUS SUMMARY

SUM

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
chnical Approval Demonstration 20, Malmstrom AFB	11-7-62	EO-1422-1/4018-1/1251-1	11-29-62			
chnical Approval Demonstration 20, Malmstrom AFB	11-7-62	EO-1422-1/4018-1/1251-1	11-29-62			
rification; T.O. 31X2-32-3-2, par. 5, 18-7				3-4-63	EO-1265-1/4018-1/1251-2	3-8-63
rification; T.O. 31X2-32-3-2, par. 5, 18-7						
rification; T.O. 31X2-32-3-2, par. 5, 18-7				3-6-63	EO-1213-1/1251-3	3-8-63
rification; T.O 31X2 32-3-2, par. , 8-7						
rification; T.O. 31X2-32-3-2, par. , 8-7						
SCHEDULED						
SCHEDULED						
SCHEDULED						
SCHEDULED						
SCHEDULED						
ification; T.O. 31X2-32-3-2, par. 3 thru Figure 29-4						
ification, T.O. 31X2-32-3-2, par.) thru Fig. 29-4						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT
1265 Digital Data Group (LF)	Organizational-Level Checkout	Partial	Revalidation; T.O. 21-SM80A-2-3, par. 2-36 thru 2-39
		Complete	UNSCHEDULED
	Organizational-Level Fault Isolation		UNSCHEDULED
	Field-Level Checkout	T-869 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		R-1096 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		AM-3159 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		MX-3681 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		MX-3682 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		MX-3683 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		MX-3684 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		MX-3685 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		ID-979 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
		R-1131 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7
	Inspection		UNSCHEDULED

TRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Revalidation; T.O. 21-SM80A-2-3, par. 2-36 thru 2-39						
UNSCHEDULED						
UNSCHFDULFD						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7				3-4-63	EO-1265-1/ 4018-1/ 1251-2	3-8-63
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7				3-4-63	EO-1265-1/ 4018-1/ 1251-2	3-8-63
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7				3-4-63	EO-1265-1/ 4018-1/ 1251-2	3-8-63
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7						
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7				3-4-63	EO-1265-1/ 4018-1/1251-2	3-8-63
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7				3-25-63	To Be Written	
Verification; T.O. 31X2-32-3-2, par. 18-5, 18-7				3-4-63	EO-1265-1/ 4018-1/1251-2	3-8-63
UNSCHEDULED				3-4-63	EO-1265-1/ 4018-1/1251-2	3/8/63

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETE
(1265)	Field-Level Fault Isolation	T-869 Drawer	UNSCHEDULED	
		R-1096 Drawer	UNSCHEDULED	
		AM-3159 Drawer	UNSCHEDULED	
		MX-3681 Drawer	UNSCHEDULED	
		MX-3682 Drawer	UNSCHEDULED	
		MX-3683 Drawer	UNSCHEDULED	
		MX-3684 Drawer	UNSCHEDULED	
		MX-3685 Drawer	UNSCHEDULED	
		ID-979 Drawer	UNSCHEDULED	
		R-1131 Drawer	UNSCHEDULED	
	Field-Level Adjustment	T-869 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-13	
		R-1096 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-13 thru fig. 19-7	
		AM-3159 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-13 thru fig. 20-7	
		ID-979 Drawer	Verification; T.O. 31X2-32-3-2, par. 22-8	
		R-1131 Drawer	Verification; T.O. 31X2-32-3-2, par. 18-13 thru fig. 23-3	

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
Verification; T.O. 31X2-32-3-2, par. 18-13						
Verification; T.O. 31X2-32-3-2, par. 18-13 thru fig. 19-7						
Verification; T.O. 31X2-32-3-2, par. 18-13 thru fig. 20-7						
Verification; T.O. 31X2-32-3-2, par. 22-8						
Verification; T.O. 31X2-32-3-2, par. 18-13 thru fig. 23-3						

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
1283 Motor-Generator, (LF)	Organizational-Level Checkout		Verification; T.O. 21-SM80A-2-11, par. 2-23	1
	Organizational-Level Fault Isolation		UNSCHEDULED	
	Organizational-Level Brush Adjustment		UNSCHEDULED	
	Organizational-Level Shutdown		Verification; T.O. 21-SM80A-2-11, par. 2-19 thru 2-22	
	Removal and Replacement		UNSCHEDULED	
1284 Power Supply Group (LF)	Organizational-Level Checkout	Voltage and Ckt. Breakers	Verification; T.O. 21-SM80A-2-11, par. 2-26	
		Relays	Verification; T.O. 21-SM80A-2-11, par. 2-27	
	Organizational-Level Fault Isolation	Voltage and Ckt. Breakers	UNSCHEDULED	
		Relays	UNSCHEDULED	
	Organizational-Level Shutdown		UNSCHEDULED	

ONSTRATION REQUIREMENTS STATUS SUMMARY

	DEMONSTRATION EVENT	COMPLETION RECORD					
		PREVIOUS			CURRENT		
		DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
	Verification; T. O. 21-SM80A-2-11, par. 2-23						
	UNSCHEDULED						
	UNSCHEDULED						
	Verification; T. O. 21-SM80A-2-11, par. 2-19 thru 2-22				3-20-63	EO-1283-2	3-22-63
	UNSCHEDULED				3-16-63	EO-1283-1	3-19-63
ct.	Verification; T. O. 21-SM80A-2-11, par. 2-26						
	Verification; T. O. 21-SM80A-2-11, par. 2-27						
ct.	UNSCHEDULED						
	UNSCHEDULED						
	UNSCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
(1284)	Field-Level Checkout (Fig. A 1284 and 1289)	PP-3026 Supply	Verification; T. O. 35C2-2-63-1, par. 4-4 thru fig. 4-2	
		PP-3030 Supply	Verification; T. O. 35C2-2-63-1, par. 4-4 thru fig. 4-2	
		PP-3027 Supply	Verification; T. O. 35C2-2-63-1, par. 4-4 thru fig. 4-2	
	Field-Level Fault Isolation (Fig. A 1284 and 1289)	PP-3026 Supply	UNSCHEDULED	
		PP-3030 Supply	UNSCHEDULED	
		PP-3027 Supply	UNSCHEDULED	
	Inspection		UNSCHEDULED	
1289 Power Supply Group (LCF)	Organizational-Level Checkout		Verification; T. O. 21-SM80A-2-11, fig. 1-10C	
	Organizational-Level Fault Isolation		UNSCHEDULED	
	Field-Level Checkout		(See Fig. A 1284)	
	Field-Level Fault Isolation		(See Fig. A 1284)	
	Inspection		UNSCHEDULED	

1

RATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
rification; T. O. 35C2-2-63-1, par. thru fig. 4-2				3-12-63	EO-1289-1/ 4152-2/1284-1	3-14-63
rification; T. O. 35C2-2-63-1, par. thru fig. 4-2				3-12-63	EO-1289-1/ 4152-2/ 1284-1	3-14-63
rification; T. O. 35C2-2-63-1, par. thru fig. 4-2				3-12-63	EO-1289-1/ 4152-2/ 1284-1	3-14-63
SCHEDULED						
SCHEDULED						
SCHEDULED						
SCHEDULED				3-12-63	EO-1284-2	3-15-63
rification; T. O. 21-SM80A-2-11, 1-10C						
SCHEDULED						
e Fig. A 1284)				3-12-63	EO-1289-1/ 4152-2/ 1284-1	3-14-63
e Fig. A 1284)						
SCHEDULED				3-12-63	EO-1289-1/ 4152-2/ 1284-1	3-14-63

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLE
1296 Restricted Area Anti-Intrusion Alarm Set Group	Organizational-Level Checkout	VRSA Input	Verification; T.O. 21-SM80A-2-4, par. 2-4A thru fig. 1-9	
		Inner Security	Verification; T.O. 21-SM80A-2-4, par. 2-4A thru fig. 1-9	
		Outer Security	Verification; T.O. 21-SM80A-2-4, par. 2-4A thru fig. 1-9	
	Organizational-Level Fault Isolation	VRSA Input	UNSCHEDULED	
		Inner Security	UNSCHEDULED	
		Outer Security	UNSCHEDULED	
	Organizational-Level Adjustment	Receiver-Transmitter	UNSCHEDULED	
		Converter-Monitor	UNSCHEDULED	
	Field-Level Checkout	Receiver Transmitter	Verification; T.O. 31X3-2-12-2, par. 7-19 thru fig. 10-2	
		Converter-Monitor	Verification; T.O. 31X3-2-12-2, par. 8-8 thru fig. 8-2	
		Power Supply	Verification; T.O. 31X3-2-12-2, par. 9-6 thru fig. 9-4	
	Field-Level Fault Isolation	Receiver-Transmitter	UNSCHEDULED	
		Converter-Monitor	UNSCHEDULED	
		Power Supply	UNSCHEDULED	
	Field-Level Adjustment	Receiver-Transmitter	UNSCHEDULED	
		Converter-Monitor	UNSCHEDULED	

RATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
rification; T. O. 21-SM80A-2-4, par. 4A thru fig. 1-9						
rification; T. O. 21-SM80A-2-4, par. 4A thru fig. 1-9						
rification; T. O. 21-SM80A-2-4, par. 4A thru fig. 1-9						
SCHEDULED						
SCHEDULED						
SCHEDULED						
SCHEDULED						
SCHEDULED						
ification; T. O. 31X3-2-12-2, par. 9 thru fig. 10-2						
ification; T. O. 31X3-2-12-2, par. thru fig. 8-2						
ification; T. O. 31X3-2-12-2, par. thru fig. 9-4						
SCHEDULED						
SCHEDULED						
SCHEDULED						
SCHEDULED						
SCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION	DEMONSTRATION EVENT	DATE COMPLETE
1337 Distribution Box (LF)	Organizational-Level Checkout	Verification; T.O. 21-SM80A-2-11, Par. 2-30 thru 2-32	
	Organizational-Level Fault Isolation	UNSCHEDULED	
	Organizational-Level Shutdown	UNSCHEDULED	
	Inspection	UNSCHEDULED	2-6
1338 Communication Control Console	Organizational-Level Checkout	UNSCHEDULED	
	Organizational-Level Fault Isolation	UNSCHEDULED	
	Field-Level Checkout (Arm & Status Panel)	Verification; T.O. 31X3-3-9-2-1, [illegible]	
	Field-Level Fault Isolation	UNSCHEDULED	
	Inspection	UNSCHEDULED	
1367 Motor-Generator (LCF)	Organizational-Level Checkout	Verification; T.O. 21-SM80A-2-11, fig. 1-10A	1-2-63
	Organizational-Level Fault Isolation	UNSCHEDULED	
	Organizational-Level Servicing	UNSCHEDULED	
	Organizational-Level Alignment	Validation, T.O. 21-SM80A-2-11, par. 1-31	

TRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification; T.O. 21-SM80A-2-11, Par. 2-30 thru 2-32						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED	[illegible]	EO-1338-1	[illegible]			
UNSCHEDULED						
UNSCHEDULED						
Verification; T.O. 31X3-3-9-2-1, [illegible] 11-1						
UNSCHEDULED						
UNSCHEDULED				3-5-63	EO-1338-1	3-8-63
Verification; T.O. 21-SM80A-2-11, Fig. 1-10A	1-2-63	EO-1367-1	1-2-63			
UNSCHEDULED						
UNSCHEDULED						
Validation, T.O. 21-SM80A-2-11, par. 2-31						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETE
1412 Voice Reporting Signal Assembly	Organizational-Level Checkout		UNSCHEDULED	
	Organizational-Level Fault Isolation		UNSCHEDULED	
	Field-Level Checkout	End-to-End	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-2	
		Audio Reproducer A	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-3	
		Audio Reproducer B	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-4	
		Input Signal Converter No. 1	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-5	
		Input Signal Converter No. 2	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-6	
		Input Signal Converter No. 3	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-7	
		Input Signal Converter No. 4	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-8	
		Sequence Step-down Control	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-9	
		Interrogation Control	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-10	
		Audio Amplifier	Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-11	
	Field-Level Fault Isolation		UNSCHEDULED	
	Field-Level Component Replacement		UNSCHEDULED	1-4-63
	Inspection		UNSCHEDULED	1-15-63

1

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
UNSCHEDULED						
UNSCHEDULED						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-2						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-3						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-4						
Verification, T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-5						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-6						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-7						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-8						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-9						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-10						
Verification; T.O. 31SI-2GSW4-2, par. 7-4, 7-5, fig. 7-1, 7-11						
UNSCHEDULED						
UNSCHEDULED	1-4-63	EO-1412-1	1-4-63			
UNSCHEDULED	1-18-63	EO-1412-2	1-22-63			

2

DEMONSTRATION REQUIREMENTS STATUS SUMMA

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION	DEMONSTRATION EVENT	DATE COMPLETED
3013 Communication - Launch Control Consoles Test Set	Organizational-Level (I243) Utilization	Technical Approval Demonstration 1-20, Vandenberg AFB	1-29-63
		Technical Approval Demonstration 1-18, Vandenberg AFB	1-29-63
		Technical Approval Demonstration 1-22, Ellsworth AFB	
	(I338)	UNSCHEDULED	
	Field-Level Checkout	UNSCHEDULED	
	Field-Level Fault Isolation	UNSCHEDULED	
	Voltmeter Calibration	UNSCHEDULED	
3092 Programmer Group Test Set	Organization-Level (I201) Utilization	Technical Approval Demonstration 1-15, Vandenberg AFB	
		Technical Approval Demonstration 1-18, Malmstrom AFB	11-7-62
	Field-Level Checkout	Verification; T O. 33D9-111-3-1, par. 5-26	
		Unscheduled Functional Test	2-[illegible]-63
	Field-Level Fault Isolation	UNSCHEDULED	

1

ATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
hnical Approval Demonstration , Vandenberg AFB	1-29-63	EO-1243-1/ 3013-1	1-30-63			
hnical Approval Demonstration , Vandenberg AFB	1-29-63	EO-1243-1/ 3013-1	1-30-63			
hnical Approval Demonstration , Ellsworth AFB						
CHEDULED						
[illegible]ULED						
CHEDULED						
CHEDULED						
inical Approval Demonstration , Vandenberg AFB						
nnical Approval Demonstration Malmstrom AFB	11-7-62	EO-1241-1/ 3042-1	1-18-63			
lication; T O. 33D9-111-3-1, par.						
heduled Functional Test	2-19-63	EO-3042-2	2-19-63			
CHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
(3092)	Field-Level Adjustment	Self Test Generator	Verification, T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-3	1
		Clock	Verification; T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-3	
		Evaluator A	Verification; T.O. 33D9-111-3-1, par. 8-6 thru 8-13	
		Evaluator B	Verification; T.O. 33D9-111-3-1, par. 8-6 thru 8-14	
		Evaluator C Phase 1	Verification; T.O. 33D9-111-3-1, par. 8-6 thru 8-15	
		Evaluator C Phase 2	Verification; T.O. 33D9-111-3-1, par. 8-6 thru 8-16	
		Evaluator D	Verification, T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-3	
		Evaluator E	Verification; T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-3	
		Reset and Generator	Verification; T.O. 33D9-111-3-1, par. 8-6 thru 8-19	
		Pulse Generator Reset	Verification; T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-3	
		Latching Relay Bias	Verification; T.O. 33D9-111-3-1, par. 11-5	
	Voltmeter Calibration		UNSCHEDULED	

RATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
rification; T. O. 33D9-111-3-1, par. thru fig. 8-3						
rification; T. O. 33D9-111-3-1, par. thru fig. 8-3						
rification; T. O. 33D9-111-3-1, par. thru 8-13						
rification; T. O. 33D9-111-3-1, par. thru 8-14						
rification; T. O. 33D9-111-3-1, par. thru 8-15						
rification; T. O. 33D9-111-3-1, par. thru 8-16						
rification, T. O. 33D9-111-3-1, par. thru fig. 8-3						
rification; T. O. 33D9-111-3-1, par. thru fig. 8-3						
rification; T. O. 33D9-111-3-1, par. thru 8-19						
rification; T. O. 33D9-111-3-1, par. thru fig. 8-3						
rification; T. O. 33D9-111-3-1, par. 5						
SCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
3109 Alarm Set Test Set	Organizational- Incomplete Level Utilization (1296)		Attempted Verification; T. O. 21-SM80A -2-4	10-15-62
		VRSA Input	Verification, T O. 21-SM80A-2-4 par 2-4A thru fig. 1-9	
		Inner Security	Verification; T. O. 21-SM80A-2-4 par. 2-4A thru fig 1-9	
		Outer Security	Verification; T. O 21-SM80A-2-4, par. 2-4A thru fig 1-9	
	Field-Level Utilization (1296)		Verification; T. O 31X3-2-12-2, par. 7-18 thru fig. 10-2	
	Field-Level Checkout	Fault Locator	UNSCHEDULED	
		Antenna Simulator	Verification, T. O. 33D9-137-2-1, par. 5-16 thru 5-22	
	Field-Level Adjustment	Fault Locator	Verification; T. O. 33D9-137-2-1, fig. 8-1	
		Antenna Test Set	Verification; T O. 33D9-137-2-1, fig 8-3	
	Inspection		UNSCHEDULED	1-17-63

1

TION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
ıpted Verification; T. O. 21-SM80A	10-15-62	EO-3109-1	10-15-62			
ication, T. O. 21-SM80A-2-4, 2-4A thru fig. 1-9						
ıcation; T. O. 21-SM80A-2-4, 2-4A thru fig 1-9						
ıcation; T. O 21-SM80A-2-4, 2-4A thru fig 1-9						
ication; T. O 31X3-2-12-2, 7-18 thru fig. 10-2						
CHEDULED						
ıcation, T. O. 33D9-137-2-1, 5-16 thru 5-22						
ication; T. O 33D9-137-2-1, 3-1						
ication; T O. 33D9-137-2-1, fig.						
CHEDULED	1-17-63 2-22-63	EO-3109-2	1-17-63		EO-3109-3	3-2-63

2

DEMONSTRATION REQUIREMENTS STATUS SUMM

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETE
4012 Data Analysis Central Test Set	Organizational-Level (1228, 1251) Utilization		Technical Approval Demonstration 1-20, Malmstrom AFB	[illegible]
			Technical Approval Demonstration 1-17, Vandenberg AFB	
	Field-Level Checkout	Continuity	Verification, T.O. 33D-13[illegible]-1, par 4-10 thru 4-12	
		Self-Verification	Verification, T.O. 33D-13[illegible]-1, Fig 4-1A, 4-2A	
		Meter Relay	Verification, T.O. 33D-13[illegible]-1, Fig 7-1, 7-2	
		Oscillator	Verification, T.O. 33D-13[illegible]-1, Fig 7-1, 7-2	
		Test Signal	Verification, T.O. 33D-13[illegible]-1, Fig 7-1, 7-2	
	Field Level Fault Isolation		UNSCHEDULED	
	Inspection		UNSCHEDULED	
4018 Test Adapter Group	Field Level Utilization	(1201)	Technical Approval Demonstration 1-14, Malmstrom AFB	
			Technical Approval Demonstration 1-18, Vandenberg AFB	
		(1261, 1251)	Verification, T.O. [illegible]-2	
		(1201)	Verification, T.O. [illegible]-2	
		(3692)	Verification, T.O. [illegible], par 5-26	
		(4252)	Verification, T.O. [illegible], par 5-9	

1

RATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
echnical Approval Demonstrat on -20, Malmstrom AFB	11-7-62	[illegible]	[illegible]			
echnical Approval Demonstration -17, Vandenberg AFB						
erification, T O [illegible] ar 4-1 thru 4-2						
erification, T O [illegible] g 4-1A, 4-2A						
erification, T O [illegible] 1, 7-2						
erification, T O [illegible] 1, 7-2						
erification, T O [illegible] -1, 7-2						
NSCHEDULED						
NSCHEDULED						
echnical Approval Demonstration -14, Malmstrom AFB						
echnical Approval Demonstration [illegible] indenberg AFB						
erification T O [illegible]				3-4-63	EO-1265-1/ 4018-1/ 1251-2	3-8-63
erification, T O [illegible]						
erification, T O [illegible] -26						
erification, T O [illegible] -9						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
(4018)	Field-Level Checkout	Self Test	Verification; T. O. 33D7-50-3-1, par. 5-7 thru fig. 5-4	2-2[illegible]-[illegible]3
		Module A4	Verification, T. O. 33D7-50-3-1, par. 5-7 thru fig. 5-4	
		Module A5	Verification; T. O. 33D7-50-3-1, par. 5-7, thru fig. 5-4	
		Module A5 (Model A)	Verification, T. O. 33D7-50-3-1, par. 5-7 thru fig. 5-4	
		Generator A6	Verification; T. O. 33D7-50-3-1, par 5-7 thru fig. 5-4	
		Converter A7	Verification, T. O. 33D7-50-3-1, par. 5-7 thru fig. 5-4	
		Simulator A8	Verification; T. O. 33D7-50-3-1, par. 5-7 thru fig. 5-4	
	Field-Level Adjustment	MX-3618 Stimuli Eval. Circuit	UNSCHEDULED	
		Voltage Reg. Circuit	UNSCHEDULED	
		Buffer Amp. Circuit	UNSCHEDULED	
		Eval. & Univib. Circuit	UNSCHEDULED	
		False Eval. Circuit	UNSCHEDULED	
		Self Test Circuit	UNSCHEDULED	
		Response Time Evaluator	UNSCHEDULED	
		Ref. Voltage	UNSCHEDULED	

TION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
fication; T. O. 33D7-50-3-1, par. hru fig. 5-4	2-25-63	390-101--	2-27-63			
fication; T. O. 33D7-50-3-1, par. hru fig. 5-4						
fication; T. O. 33D7-50-3-1, par. thru fig. 5-4						
fication; T. O. 33D7-50-3-1, par. hru fig 5-4						
fication; T. O. 33D7-50-3-1, par hru fig. 5-4						
fication; T. O. 33D7-50-3-1, par. hru fig. 5-4						
fication; T. O. 33D7-50-3-1, par. hru fig 5-4						
CHEDULED						
CHEDULED						
CHEDULED						
CHEDULED						
CHEDULED						
CHEDULED						
CHEDULED						
CHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLE
(4018)	(Field-Level Adjustment)	MX-4214 Self Test Circuit	UNSCHEDULED	
		Stimuli Gen. (25-33140)	UNSCHEDULED	
		Stimuli Gen. (25-33141)	UNSCHEDULED	
		PP-3377 Univibrator Circuit	UNSCHEDULED	
		Clock Pulse Simulator (25-33111)	UNSCHEDULED	
		Clock Pulse Simulator (25-33115)	UNSCHEDULED	
		Clock Pulse Supply (25-33112)	UNSCHEDULED	
		Clock Pulse Supply (25-33113)	UNSCHEDULED	
		Power Supply (25-33122)	UNSCHEDULED	
		Power Supply (25-33125)	UNSCHEDULED	
		Power Supply (25-33126)	UNSCHEDULED	

RATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						
NSCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETE
(4018)	(Field-Level Adjustment)	PP-3378 Power Supply (25-33132)	UNSCHEDULED	
		Power Supply (25-33135)	UNSCHEDULED	
		Power Supply (25-33136)	UNSCHEDULED	
		PP-3376 Power Supply (25-33106)	UNSCHEDULED	
		Power Supply (25-33123)	UNSCHEDULED	
	Inspection		UNSCHEDULED	2-[illegible] 3 2-[illegible]
4043 Passenger and Equipment Elevator-Workcage	Organization-Level Utilization		UNSCHEDULED	12-18-
	Field-Level Checkout		Verification; T.O. 35A4-2-31-1 Proof Loading Test	
	Field-Level Fault Isolation		UNSCHEDULED	
	Field-Level Servicing		UNSCHEDULED	
	Field-Level Repair		UNSCHEDULED	1-25-[illegible]

ISTRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED	2-[illegible]-3 2-[illegible]-5	EO-4[illegible]-1 EO-4[illegible]-2	[illegible]			
UNSCHEDULED	12-18-62	EO-4043-1	12-18-62			
Verification; T.O. 35A4-2-31-1						
Proof Loading Test				3-26-63	EO-4043-3	3-29-63
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED	1-25-63	EO-4043-2	1-25-63			

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETE
4152 Electronic Facility-Base Maintenance Test Equipment	Field-Level Utilization	(1201 Drawer A6, Part No. -40)	Verification; T.O. 31X3-[illegible] 11-17 thru 11-23	2-1 -: 3
		(1201 Drawer A6, Part No. -50)	Verification, T.O 31X3-[illegible] 11-17 thru 11-23	
		(1201 Drawer A7)	Verification ; T.O. 31X3-[illegible] 12-15 thru 12-19	
		(1243 Telephone Xmtr. Control)	Verification ; T.O. 31X3-3-9-2-1, par. 13-3, 13-4, fig. 13-1	
		(1338 Arm & Status Panel)	Verification; T.O. 31X3-3-9-2-1, fig. 14-1	
		(3092 Self Test Gen.)	Verification; T.O. 33D9-111-3-1, par. 8-6 thru fig 8-3	
		(3092 Clock)	Verification, T.O. 33D9-111-3-1, par 8-6 thru fig. 8-3	
		(3092Evaluator A)	Verification; T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-13	
		(3092 Evaluator B)	Verification, T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-14	
		(3092 Evaluator CØ1)	Verification; T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-15	
		(3092 Evaluator CØ2)	Verification; T.O. 33D9-111-3-1, par. 8-6 thru 8-16	
		(3092 Evaluator D)	Verification; T.O. 33D9-111-3-1, par. 8-6 thru fig. 8-3	

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification; T. O. 31X3-12-8-2, par. 11-17 thru 11-23	2-1[illegible]-63	EO-4152-1	2-21-63			
Verification; T. O. 31X3-12-8-2, par 11-17 thru 11-23						
Verification ; T. O. 31X3-12-8-2, par. 12-15 thru 12-19						
Verification ; T. O. 31X3-3-9-2-1, par. 13-3, 13-4, fig. 13-1						
Verification; T. O. 31X3-3-9-2-1, fig. 14-1						
Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig 8-3						
Verification, T. O. 33D9-111-3-1, par 8-6 thru fig. 8-3						
Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig. 8-13						
Verification, T. O. 33D9-111-3-1, par. 8-6 thru fig. 8-11						
Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig. 8-15						
Verification; T. O. 33D9-111-3-1, par. 8-6 thru 8-16						
Verification; T. O 33D9-111-3-1, par. 8-6 thru fig. 8-3						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLE
(4152)	(Field Level Utilization)	(3092 Evaluator E)	Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig. 8-3	
		(3092 Reset & Gen)	Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig. 8-19	
		(3092 Pulse Gen. Reset)	Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig. 8-3)	
		(3109 Antenna Simulator)	Verification; T. O. 33D9-137-2-1, par. 5-16 thru 5-22	
		(3109 Fault Locator)	Verification, T. O. 33D9-137-2-1, fig. 5-1	
		(4252 Pwr. Supply Control)	Verification; T. O. 31X2-62-4-1	
		(4252 Reg. Power Supply)	Verification: T. O. 31X2-62-4-1	
		(4252 Verifier Indicator)	Verification, T. O. 31X2-62-4-1	
		(4252 CSD Verifier Unit)	Verification; T. O. 31X2-62-4-1	
		(4490 Simulator Set)	Verification; T. O. 33D9-14-26-1, par. 5-10, fig. 5-1	
		(1412)	Verification, T. O. 31S1-2GSW4-2	
		(44 9)	Verification, T. O. [illegible]	
		(1284, 1289)	Verification T. O. 35C2-2-63-1	
		(1296 Receiver - Xmtr.)	Verification: T. O. 31X3-2-12-2, par. 7-19 thru fig. 10-2	

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig. 8-3						
Verification; T. O 33D9-111-3-1, par. 8-6 thru fig. 8-19						
Verification; T. O. 33D9-111-3-1, par. 8-6 thru fig 8-3)						
Verification; T. O. 33D9-137-2-1, par. 5-16 thru 5-22						
Verification, T. O 33D9-137-2-1, fig. 5-1						
Verification; T. O. 31X2-62-4-1						
Verification: T. O. 31X2-62-4-1						
Verification, T. O 31X2-62-4-1						
Verification; T. O. 31X2-62-4-1						
Verification; T. O. 33D9-14-26-1, par. 5-10, fig 5-1						
Verification, T. O. 31S1-2GSW4-2						
Verification, T. O. [illegible]				3-29-63	To Be Written	
Verification: T. O. 35C2-2-63-1				3-12-63	EO-1289-1/ 4152-2/ 1284-1	3-14-63
Verification: T. O. 31X3-2-12-2, par. 7-19 thru fig. 10-2						

2

FIGURE A. EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLET
(4152)	(Field-Level Utilization)	(1296 Converter-Monitor)	Verification; T.O. 31X3-2-12-2 8-8 thru fig 8-2	
		(1296 Power Supply)	Verification; T.O. 31X3-2-12-2 9-6 thru fig. 9-4	
	Field-Level Checkout	Maintenance Table	Verification; T.O 33D9-6-21-1, par 4-46, fig. 4-25	
		Elec. Dummy Loads DA-304, 305, 306	Verification, T.O 33D9-6-21-1, par. 4-48, Fig. 9-3, 9-4, 9-5	
		Test Set Power Supply TS-1795	Verification, T.O. 33D9-6-21-1, par. 4-50, fig 4-26, 9-6	
		Dummy Decoder Test Set TS-1796	Verification; T.O. 33D9-6-21-1, par. 4-52, Fig. 9-7	
		Adapter-Connector MX-4283	Verification, T.O. 33D9-6-21-1, par 4-54, Fig. 9-8	
		Adapter-Connector MX-4284	Verification; T.O. 33D9-6-21-1, par. 4-56, Fig. 9-9	
		Telephone Rptr. Test Sets TS-1819, 1821, 1822	Verification; T.O. 33D9-6-21-1, par 4-58, Fig 9-10, 9-11, 9-12	
		Test Adapter MX-4453	Verification; T.O. 33D9-6-21-1, par. 4-60, fig. 9-13	
		Revr-Xmtr Alarm Set T.S. TS-1826	Verification; T.O. 33D9-6-21-1, par. 4-62, fig. 9-14	
		Converter-Monitor Test Set TS-1825	Verification; T.O. 33D9-6-21-1, par. 4-64, fig. 4-27, 4-28, 9-15	

NSTRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification; T.O. 31X3-2-12-2, par, 8-8 thru fig 8-2						
Verification; T.O. 31X3-2-12-2, par 9-6 thru fig. 9-4						
Verification; T.O 33D9-6-21-1, par 4-46, fig. 4-25						
Verification, T.O 33D9-6-21-1, par. 4-48, Fig. 9-3, 9-4, 9-5						
Verification, T.O. 33D9-6-21-1, par. 4-50, fig 4-26, 9-6						
Verification; T O. 33D9-6-21-1, par. 4-52, Fig. 9-7						
Verification; T.O. 33D9-6-21-1, par 4-54, Fig. 9-8						
Verification; T O. 33D9-6-21-1, par. 4-56, Fig. 9-9						
Verification; T.O. 33D9-6-21-1, par 4-58, Fig 9-10, 9-11, 9-12						
Verification; T.O. 33D9-6-21-1, par. 4-60, fig. 9-13						
Verification; T.O. 33D9-6-21-1, par. 4-62, fig. 9-14						
Verification; T.O. 33D9-6-21-1, par. 4-64, fig. 4-27, 4-28, 9-15						

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FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
(4152)	(Field-Level Checkout)	Power Supply Test Set TS-1820	Verification; T. O. 33D9-6-21-1, par 4-66, fig. 9-16	
		Test Set Voltage Regulator TS-1794	Verification; T. O. 33D9-6-21-1, par 4-68, fig 9-17	
		Comm. Test Set Tester TS-1789	Verification; T. O 33D9-6-21-1, par 4-70, fig. 9-18	
		VRSA Test Set Tester TS-1823	Verification; T. O 33D9-6-21-1, par 4-72, fig. 9-19	
		VRSA Test Set Adapters MK-685	Verification; T. O. 33D9-6-21-1, par 4-74, fig. 9-20	
		Elec. Dummy Load DA-312	Verification, T. O. 33D9-6-21-1, par. 4-78, fig. 9-22	
		Connector-Adapters MX-4650, 4651, 4652	Verification; T. O. 33D9-6-21-1, par 4-80, fig. 9-23, 9-24, 9-25	
		Azimuth Drive Controller Test Set TS-1849	Verification, T. O 33D9-6-21-1, par. 4-82, fig. 9-26	
		Test Adapter MX-4451	Verification, T. O. 33D9 6-21-1, par. 4-84, fig. 9-27	
		Power Supply Test Set TS-1861	Verification; T. O 33D9-6-21-1, par 4-86, fig. 9-28	
		Power Supply Test Set TS-1860	Verification, T. O. 33D9-6-21-1, par 4-88, fig. 4-29, 9-29	
		Power Supply Test Set TS-1862	Verification; T. O. 33D9-6-21-1, par 4-90, fig. 4-30, 9-30	
		Elec. Dummy Load DA-321	Verification, T. O. 33D9-6-21-1, par. 4-92, fig. 4-31, 9-31	

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DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification; T.O. 33D9-6-21-1, par. 4-66, fig. 9-16						
Verification; T.O. 33D9-6-21-1, par. 4-68, fig 9-17				3-26-63	To Be Written	
Verification; T.O. 33D9-6-21-1, par. 4-70, fig. 9-18						
Verification; T.O 33D9-6-21-1, par 4-72, fig. 9-19						
Verification; T.O. 33D9-6-21-1, par. 4-74, fig. 9-20						
Verification, T.O. 33D9-6-21-1, par. 4-78, fig. 9-22						
Verification; T.O. 33D9-6-21-1, par 4-80, fig. 9-23, 9-24, 9-25						
Verification; T.O 33D9-6-21-1, par. 4-82, fig. 9-26						
Verification, T O. 33D9 6-21-1, par. 4-84, fig. 9-27						
Verification; T O 33D9-6-21-1, par 4-86, fig. 9-28						
Verification, T.O. 33D9-6-21-1, par 4-88, fig. 4-29, 9-29						
Verification; T.O. 33D9-6-21-1, par 4-90, fig. 4-30, 9-30						
Verification, T.O. 33D9-6-21-1, par. 4-92, fig. 4-31, 9-31						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLE
(4152)	(Field-Level Checkout)	Logic Module T. S. TS-[illegible]	Verification; T.O. [illegible] 4-102, fig. [illegible]	
		Logic Module T.S. TS-[illegible]	Verification; T.O. [illegible] 4-104, fig. [illegible]	
		Test Adapter MX-4691	Verification; T.O. [illegible] 4-106, fig. 4-36, [illegible]	
		Test Adapter MX-4703	Verification, T.O. [illegible] 4-108, fig. [illegible]	
		Test Adapter MX-4704	Verification; T.O. [illegible] 4-110, fig. [illegible]	
		Test Adapter MX-4702	Verification, T.O. [illegible] 4-112, fig. [illegible]	
		Test Adapter MX-4700	Verification, T.O. [illegible] 4-114, fig. [illegible]	
		Test Adapter MX-4701	Verification; T.O. [illegible] 4-116, fig. [illegible]	
		Test Adapter MX-4696	Verification; T.O. [illegible] 4-118, fig. [illegible]	
		Test Adapter MX-4695	Verification, T.O. [illegible] 4-120, fig. 4-37, [illegible]	
		Test Adapter MX-4693	Verification, T.O. [illegible] 4-118, fig. [illegible]	
		Test Adapter MX-4692	Verification; T.O. [illegible] 4-120, fig. [illegible]	
		Test Adapter MX-4694	Verification; T.O. [illegible] 4-122, fig. [illegible]	
		Test Adapter MX-4625	Verification; T.O. [illegible] 4-124, fig. 4-42, [illegible]	
		Test Adapter MX-4697	Verification; T.O. [illegible] 4-126, fig. 4-43, [illegible]	

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NSTRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification; T.O. 33D[illegible]-6-21-1, par. 4-102, fig. 9-36						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-104, fig. 9-37						
Verification; T.O. 33D[illegible]-6-21-1, par 4-106, fig. 4-36, 9-38						
Verification, T.O. 33D[illegible]-6-21-1, par. 4-108, fig. 4-39				3-26-63	To Be Written	
Verification; T.O. 33D[illegible]-6-21-1, par. 4-110, fig. 9-40						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-112, fig. 9-41						
Verification, T.O. 33D[illegible]-6-21-1, par. 4-114, fig. 9-42						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-116, fig. 9-43						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-118, fig. 9-44						
Verification, T.O. 33D[illegible]-6-21-1, par. 4-119, fig. 4-37, 9-45						
Verification, T.O. 33D[illegible]-6-21-1, par. 4-118, fig. 4-38, 9-46						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-120, fig. 4-39, 4-39, 9-47						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-122, fig. 4-41, 9-47						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-124, fig. 4-42, 9-49						
Verification; T.O. 33D[illegible]-6-21-1, par. 4-126, fig. 4-43, 9-50				3-25-63	To Be Written	

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETE
(4152)	(Field-Level Checkout)	Adapter Test Set TS-1841	Verification, T. O. 33D9-6-21 4-94, fig 9-32	1
		Simulator Test Set TS-1879	Verification; T. O. 33D9-6-21 4-96, fig. 9-33	
		Cooler Test Set TS-1880	Verification; T. O. 33D9-6-21 4-98, fig. 9-34	
		Alarm Set T. S. Tester TS-1878	Verification; T. O 33D9-6-21-1, par. 4-100, fig. 4-32, 4-33, 4-34, 4-35, 9-35	
	Field-Level Adjustment	Cooling Air Fixture Rotation	Verification; T O 33D9-6-21-1, par 4-5	
		Converter-Monitor Test Set	UNSCHEDULED	
		Launch Simulator Test Set	UNSCHEDULED	
4252 Code Inserter-Verifier Set	Field-Level Utilization		Technical Approval Demonstration 1-23, Ellsworth AFB	
	Field-Level Checkout	V. U. Readers & Function Sel. Assy	Verification; T. O. 31X2-62-4-1, par. 5-9	
		Power Supply Control	Verification; T O. 31X2-62-4-1	
		Code Indicator	Verification; T. O 31X2-62-4-1	
		Coder Unit Code Pack	Verification; T O 31X2-62-4-1	

ONSTRATION REQUIREMENTS STATUS SUMMARY

	DEMONSTRATION EVENT	COMPLETION RECORD					
		PREVIOUS			CURRENT		
		DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
	Verification; T. O. 33D9-6-21-1, par. 4-94, fig 9-32						
	Verification; T. O. 33D9-6-21-1, par 4-96, fig. 9-33						
	Verification; T. O. 33D9-6-21-1, par 4-98, fig. 9-34						
3	Verification; T. O 33D9-6-21-1, par. 4-109,. fig. 4-32, 4-33, 4-34, 4-35, 9-35						
on	Verification; T O 33D9-6-21-1, par 4-5						
n-	UNSCHEDULED						
	UNSCHEDULED						
	Technical Approval Demonstration 1-23, Ellsworth AFB						
& ssy	Verification; T. O. 31X2-62-4-1, par. 5-9						
	Verification; T. O. 31X2-62-4-1						
	Verification; T. O 31X2-62-4-1						
de	Verification; T O 31X2-62-4-1						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
(4252)	(Field-Level Checkout)	Launch Control Coder Unit	Verification; T. O. 31X2-62-4-1	
		Regulated Power Supply	Verification; T. O. 31X2-62-4-1	
		Unregulated Power Supply	Verification; T. O. 31X2-62-4-1	
		Verifier Unit Indicator Assy.	Verification; T. O. 31X2-62-4-1	
		Command Signals Decoder Ver. Unit	Verification; T. O. 31X2-62-4-1	
		Launch Control Panel Ver. Unit	Verification, T. O. 31X2-62-4-1	
		End-to-End	UNSCHEDULED	
	Field-Level Fault Isolation	V. U. Readers & Function Sel. Assy.	UNSCHEDULED	
		Power Supply Control	UNSCHEDULED	
		Code Indicator	UNSCHEDULED	
		Coder Unit Code Pack	UNSCHEDULED	
		Launch Control Coder Unit	UNSCHDULED	
		Regulated Power Supply	UNSCHEDULED	

TRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification; T. O. 31X2-62-4-1						
Verification; T. O. 31X2-62-4-1						
Verification; T. O. 31X2-62-4-1						
Verification; T. O. 31X2-62-4-1						
Verification; T. O. 31X2-62-4-1						
Verification, T. O 31X2-62-4-1						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHDULED						
UNSCHEDULED						

2

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE COMPLETED
(4252)	(Field-Level Fault Isolation)	Unregulated Power Supply	UNSCHEDULED	
		Verifier Unit Indicator Assy.	UNSCHEDULED	
		Command Signals Decoder Ver Unit	UNSCHEDULED	
		Launch Control Panel Ver. Unit	UNSCHEDULED	
	Field-Level Adjustment	Power Supply Control	Verification, T O 31X2-62-4-1	
		Code Indicator	Verification, T O 31X2-62-4-1	
		Reg. Power Supply	Verification; T O 31X2-62-4-1	
		Verifier Unit indicator	Verification; T O 31X2-62-4-1	
		CSD Verifier Unit	Verification, T O 31X2-62-4-1	
		Coder Unit Brushes	UNSCHEDULED	
	Inspection		UNSCHEDULED	11-7-62
4487 Command Signals Decoder Simulator	Organizational-Level Utilization	Partial	Verification; T.O. 21-SM80A-2-3, par. 2-67C thru 2-67F	
		Complete	UNSCHEDULED	

STRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
UNSCHEDULED						
Verification, T O 31X2-62-4-1						
Verification, T O 31X2-62-4-1						
Verification; T O 31X2-62-4-1						
Verification; T O 31X2-62-4-1						
Verification, T O 31X2-62-4-1						
UNSCHEDULED						
UNSCHEDULED	11-7-62	FO-4252-1	11-7-62			
Verification; T.O. 21-SM80A-2-3, par. 2-67C thru 2-67F						
UNSCHEDULED						

2

DEMONSTRATION REQUIREMENTS STATUS SUMMAR

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION	DEMONSTRATION EVENT	DATE COMPLETED
4489 Message Generator	Organizational- Partial Level Utilization	Verification, T. O. 21-SM80A-2-3, par 2-67C thru 2-67F	
	Complete	UNSCHEDULED	
	Field-Level Checkout	Verification, T.O. 33D9-5-4-1	
	Field-Level Fault Isolation	UNSCHEDULED	
	Inspection	UNSCHEDULED	
4490 Missile and Launch Electrical Functions Simulator Set	Organizational- Partial Level Utilization	Verification, T. O 21-SM80A-2-3, par 2-67C thru 2-67F	
	Complete	UNSCHEDULED	
	Field-Level Checkout Simulator Set	Verification, T O 33D9-14-26-1, par. 5-10, fig. 5-1	
	Recorder	Verification; T. O. 33D9-14-26-1, par. 5-12	
	Field-Level Fault Isolation	UNSCHEDULED	
	Inspection	UNSCHEDULED	2-11-63 EC 2-22-63 FO

1

TRATION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
Verification, T. O. 21-SM80A-2-3, par 2-67C thru 2-67F						
UNSCHEDULED						
Verification, T. O. 33D9-5 -4-1				3-29-63	To Be Written	
UNSCHEDULED						
UNSCHEDULED				3-1-63	EO-4489-1	3-4-63
Verification, T. O 21-SM80A-2-3, par 2-67C thru 2-67F						
UNSCHEDULED						
Verification, T O 33D9-14-26-1, par. -10, fig. 5-1						
Verification; T. O. 33D9-14-26-1, par. -12						
UNSCHEDULED						
UNSCHEDULED	2-11-63 2-22-63	EO-4490-1 EO-4490-2	2-11-63 2-22-63			

2

DEMONSTRATION REQUIREMENTS STATUS SUMMA

FIGURE A EQUIPMENT ITEM	MAINTENANCE OPERATION		DEMONSTRATION EVENT	DATE MPLETED
4491 Launch Facility Start-Up Unit	Organizational-Partial Level Utilization		Verification; T. O. 21-SM80A-2 par. 2-67C thru 2-67F	
		Complete	Verification, T. O. 21-SM80A-2 par 2-66 thru fig 2-37	25-63
	Field-Level Checkout		UNSCHEDULED	
	Field-Level Fault Isolation		UNSCHEDULED	
	Field-Level Adjustment	Gyro Start Assy.	UNSCHEDULED	
		Power Supply Assy.	UNSCHEDULED	
	Inspection		UNSCHEDULED	2-15-63 2-27-63

TION REQUIREMENTS STATUS SUMMARY

DEMONSTRATION EVENT	COMPLETION RECORD					
	PREVIOUS			CURRENT		
	DATE COMPLETED	REPORT NO.	REPORT DATE	DATE COMPLETED	REPORT NO.	REPORT DATE
fication; T. O. 21-SM80A-2-3, 2-67C thru 2-67F						
fication, T. O. 21-SM80A-2-3, 2-66 thru fig 2-37	1-25-63	EO-4491-1	2-6-63			
SCHEDULED						
CHEDULED						
SCHEDULED						
SCHEDULED						
CHEDULED	2-15-63 2-27-63	EO-4491-2 EO-1491-3	2-18-63 2-27-63			

6.4 CURRENT EVALUATION/OBSERVATION (E/O) REPORTS

The following pages contain the twelve E/O Reports completed during the period covered by this document. The reports are arranged in numerical order, by report number.

Each E/O Report consists of a M Checklist and a supplementary rating analysis. The checklist contains numerical ratings for all major Maintainability features observed and evaluated during the indicated demonstration event. The supplementary rating analysis accompanying the checklist both substantiates the numerical ratings and provides constructive recommendations. The recommendations propose specific improvements to be made in order to attain "Good" Maintainability.

MAINTAINABILITY EVALUATION/OBSERVATION REPORT

eport No. EO-1213-1/1251-3 Date 3-8-63 Page 1 of 3

Prepared by A. H. Smith M/S 6207-1 phone 866-3761

Figure A No. 1213 Nomen Digital Data Processing Equipment OA-3850/GYK-1(v)

Dwg. No. 8323348-502 Serial No. 4

Observed Event T.O. V&V Location VAFB Date 3-6-63

Title or Description Drawer Checkout and Static Evaluation

T.O. Procedures 31X2-32-3-2 Sections VII thru XVII

MAINTAINABILITY CHECKLIST

1	Fault Isolation	4	14	Lines and Cables	4
2	Standardization	4	15	Fasteners	4
3	Interchangeability	4	16	Covers, Cases, Shields	3
4	Packaging, Mounting	3	17	Disposable Modules	4
5	Accessibility	3	18	Test Equipment	4
6	Work Space	4	19	Servicing, Handling, Equip.	N/A
7	Testing, Servicing	3	20	Tools	4
8	Displays	N/A	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	3
10	Labels, Marking	3	23	Figure A	4
11	Controls	4	24	Form B/C	N/E
12	Work Aids	4	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	2

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 4. a. A17, the "site tailoring plug" in the Converter, Digital to Diphase CV-1236/GYK-1(V) must be removed during testing. The plug is inside the drawer and its removal requires removal of the top dust-cover which is secured by 44 screws.

Recommendation.

The dust cover should be modified to incorporate a sliding panel which will give rapid access to this plug.

This is similar to the problem and recommendation of EO-1251-1, of November 29, 1962.

b. A large number of components in all drawers of this equipment are soldered in, the major exception being the PCA's. As noted in EO-1265-1, the soldering in of components will result in the need to send drawers to Depot for repair in many instances.

Recommendation.

Wherever feasible, and wherever justified by a high failure rate, components should be repackaged to have plug-in or screw-type terminations.

c. As noted in previous reports, the Standard Minuteman Rack has its electrical connectors grouped at the top of the rack; this leads to a requirement to use a step ladder when making connections during test.

Recommendation.

The rack should be redesigned so that the electrical connectors are more accessible to operating personnel.

Item 7. When testing the Panel, Indicator SB-1411 (GYK-1 (v) it is necessary to remove the Filter Assembly (see Fig. 7-1 of T.O. 31x2-32-3-2). This involves the removal of 18 screws and is in conflict with sections 10.4.3.8 and 10.4.3.10 of MIL-STD-803.

Recommendation.

a. The sub-assembly holding the Filter Units should be an open structure, which would permit access for test-probes.

or b. The Filter Assembly should be hinged along the bottom side and held by a minimal number of quick-release fasteners.

Item 10. Panels A2, A3, A4, A5, A6 and A7 of the Status Message Processing Group, and panels A3, A5, A6 and A7 of the Command Message Processing Group all weigh more than 45 pounds but are not so labelled.

Recommendation.

Appropriate weight labels should be affixed.

Item 16. Top dust covers on the drawers of the Fig. A 1213 are secured by 44 captive slotted screws, while bottom covers are secured by 20 Phillips quick-release fasteners. See EO-1265-1.

Recommendation.

All cover fasteners should be of the same variety, and the number of fasteners securing the top cover should be reduced.

Item 22. Trouble-shooting charts in T.O. 31x2-32-3-2 (Figs. 7-1, 8-3, 9-1 etc.) call for replacement of soldered-in components.

Recommendation.

As noted in EO-1265-1, the T.O. should reflect the no-soldering policy by differentiating between replacements that may be performed at Field Level and those that will require Depot Level maintenance.

Item 26. Some repairs of Fig. A 1213 equipment drawers require the use of soldering techniques. In order to avoid the wasteful tie-up of equipment in a Depot "pipe-line" it would be necessary to provide personnel qualified to solder at the SMSB, or alternatively the equipment should be reworked to eliminate soldered connections.

MAINTAINABILITY EVALUATION/~~OBSERVATION REPORT~~

eport No. EO-1214-1 Date 3-8-63 Page 1 of 3

Prepared by A. H. Smith M/S 6207-1 phone 866-3761

Figure A No. 1214 Nomen Liquid Cooling Equipment, Ground Guidance & Control MXK-118/F37U

Dwg. No. 25-23793 Serial No. 0000001

Observed Event None Location VAFB Date 3-8-63

Title or Description Static Evaluation

T.O. Procedures 35E9-35-1

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/O	14	Lines and Cables	4
2	Standardization	4	15	Fasteners	3
3	Interchangeability	4	16	Covers, Cases, Shields	4
4	Packaging, Mounting	3	17	Disposable Modules	N/O
5	Accessibility	4	18	Test Equipment	4
6	Work Space	4	19	Servicing, Handling, Equip.	1
7	Testing, Servicing	2	20	Tools	4
8	Displays	4	21	Platforms, Stands, Shelters	N/E
9	Handles	4	22	Technical Order	4
10	Labels, Marking	2	23	Figure A	3
11	Controls	4	24	Form B/C	N/E
12	Work Aids	N/O	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	3

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 4. The refrigerant unit employs the use of crimped and silver-soldered pipe connections and terminations; this calls for the use of specialized equipment and personnel during servicing.

Recommendation.

The need for brazing should be eliminated by the use of manually operated values and standard threaded connections. Although brazing is extensively used in commercial applications it is believed that this is due to the cheapness of the method rather than its suitability for maintenance.

Item 7. As noted in item 4, the process of servicing the refrigerant unit is considerably complicated by the need for brazing.

Item 10. a. There are no weight labels on the assemblies of the Fig. A 1214.

Recommendation.

Weight labels should be affixed to all assemblies which are handled separately.

b. During relay replacement, para. 3-26 of T.O. 35E9-35-1, step c requires that wires from the relay assembly shall be removed and marked.

Recommendation.

These wires should be identified by adhesive labels to avoid the possibility of error in assembly.

Item 15. An excessive number of screws is used to mount the cover of the electronic amplifier.

Recommendation.

The number of screws should be reduced.

Item 19. During TAT Demonstration 1-12 (Removal and replacement of G&C unit pump package) it was found to be impossible to use the handlift truck as called out in T.O. 21-SM80A-2-6 because it was too large and cumbersome, and would not allow the handling dolly to be employed. However, a T.O. change was written requiring removal of the unit onto the dolly by hand.

It is believed that this problem may also be unique to Vandenberg because of the difference in location of the personnel access hatch.

Recommendation.

None. The T.O.-change mentioned will avoid this difficulty.

Item 23. The figure A does not contain Maintainability design requirements.

Recommendation.

Maintainability requirements should be incorporated at the next revision.

Item 26. As noted in item 4 above, servicing of the refrigerant unit requires the services of a welder.

Recommendation.

Redesign of the plumbing to incorporate threaded unions and valves would eliminate this requirement.

MAINTAINABILITY ~~EVALUATION~~/OBSERVATION REPORT

Report No. EO-1214-2 Date 3-15-63 Page 1 of 2

Prepared by R. L. Stearns M/S M1-FA phone 761-4320

Figure A No. 1214 Nomen G & C Liquid Cooler

Dwg. No. Serial No.

Observed Event Maintenance Location Malmstrom D-6 Date 3-13-63

Title or Description Replacement of Chiller, Water Refrigerating

~~T.O. Procedures~~ Old Unit Serial No. 59, New: 350

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/O	14	Lines and Cables	4
2	Standardization	3	15	Fasteners	3
3	Interchangeability	N/E	16	Covers, Cases, Shields	N/A
4	Packaging, Mounting	3	17	Disposable Modules	N/O
5	Accessibility	4	18	Test Equipment	N/E
6	Work Space	4	19	Servicing, Handling, Equip.	4
7	Testing, Servicing	N/O	20	Tools	4
8	Displays	4	21	Platforms, Stands, Shelters	N/A
9	Handles	N/A	22	Technical Order	N/O
10	Labels, Marking	3	23	Figure A	N/O
11	Controls	N/A	24	Form B/C	N/O
12	Work Aids	N/A	25	Specifications	N/O
13	Connectors, Connections	4	26	Personnel Requirements	N/O

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 2:

The hole in the chiller hoisting eye is about 1/2 the diameter of the mechanical truck hoist hook.

Recommendation:

All hoist eyes and hoist hooks should be compatible and standardized.

Item 4:

The chiller is mounted with six bolts. The unit weight is about 200 lbs. The unit has no method of positioning for mounting bolt installation.

Recommendation:

About two inches inboard on the mounting rails, drill drift pin holes so the unit can be positioned.

Item 10:

The hoisting eye is not labeled.

Recommendation:

Label the hoisting eye.

Item 15:

The six 3/8" (approx.) mounting bolts have fine threads. This makes it very difficult to install them due to the tendency for cross threading. (12 minutes and 2 stripped bolts were expended in installing the last bolt).

Recommendation:

Use a coarse thread to decrease maintenance time and number of bolts required.

MAINTAINABILITY EVALUATION/OBSERVATION REPORT

Report No. EO-1265-1/4018-4/1251-2 Date 3-8-63 Page 1 of 4

Prepared by A.H. Smith M/S 6207-1 phone 866-3761

Figure A No. 1265 Nomen Digital Data Group LCC-0A3541/GYK-1 (v)

Dwg. No. 8323562-501 Serial No. 5

Observed Event V&V Location VAFB Date 3-4-63

Title or Description Drawer Checkout and Static Evaluation

T.O. Procedures 31x2-32-3-2 Section XVIII through XXIII

MAINTAINABILITY CHECKLIST

1	Fault Isolation	3	14	Lines and Cables	4
2	Standardization	4	15	Fasteners	4
3	Interchangeability	4	16	Covers, Cases, Shields	3
4	Packaging, Mounting	3	17	Disposable Modules	4
5	Accessibility	3	18	Test Equipment	4
6	Work Space	4	19	Servicing, Handling, Equip.	N/A
7	Testing, Servicing	4	20	Tools	4
8	Displays	N/A	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	3
10	Labels, Marking	3	23	Figure A	3
11	Controls	4	24	Form B/C	N/E
12	Work Aids	4	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	2

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 1. Field-level fault isolation capabilities are rendered all but useless by the no-soldering philosophy. If indeed no soldering is to be permitted at the SMSA then it is highly questionable whether it will be worth the time and trouble to put faulty drawers through the formality of checkout on the Figure A 4018. With the exception of the PCA's in these drawers, (which are wire-wrapped), almost all other remedial replacements would involve soldering and are hence forbidden at Field-Level.

Coupled with the fact that the Figure A 4018 fault isolation capability is somewhat restricted and incomplete, it seems to be inevitable that a large proportion of faulty drawers will waste a lot of time before eventually being sent to depot for repair.

Recommendation.

Alternative a. Field-level checkout of equipment drawers containing a preponderance of soldered connections should be discontinued. Drawers revealed as being faulty by the Figure A 4012 DAC Test Set should be sent to Depot with no further expenditure of effort.

Alternative b. The equipment drawers should be entirely reworked, replacing all soldered connections by screwed, wrapped, or crimped connections.

Alternative c. The ban on soldering should be rescinded, or at least modified to allow soldering at Field Level by specially qualified personnel.

Item 4. a. Replacement of equalizing coils, transformers, and PCA's common to Figure A 1265 drawers will be comparatively slow regardless of where the work is done because the units are "wired-in" to associated circuitry.

Recommendation.

As a supplemental measure to those outlined in item 1, the above-mentioned modules should be repackaged to a plug-in configuration, provided the failure-rates expected for each item would warrant the change.

Item 5. The standard Minuteman equipment rack is a very sound structure, but it has one feature which is less than optimum as far as Maintainability is concerned, namely the grouping of electrical connectors at the top of the rack. It is always necessary to use a ladder to reach the connectors, and in some instances, (particularly in the LF) accessibility is impaired by overhead air-trunking and cable-trays.

Recommendation.

One possibility would be to route the cables along the back of the racks at ground level into an aperture at the bottom, connecting them vertically. In effect this would amount to turning the rack

cable-tray upside-down and raising the rack to allow access underneath.

Item 10. No weight labels are displayed on the drawers of the Figure A 1265, although at least two drawers, A6 and A7, weigh more than 45 pounds.

Recommendation.

Appropriate weight labels should be displayed.

Item 16. The drawer top covers are secured by 44 slotted captive screws, while the bottom covers are secured by 20 Phillips quick release fasteners.

Recommendation.

a. The number of screws used to secure the top cover should be reduced.

b. All fasteners should be of one variety, preferably slotted quick-release.

Item 22. a. During drawer checkout process using Figure A 4018, Boeing personnel interjected a verbal warning at Paragraph 18-5 step n. After inserting the drawer in the test fixture, they advised the airman to reach down behind the test adapter and "jiggle" it to ensure that the connectors were properly mated. They stated that in their experience this action had eliminated spurious NO-GO's.

Recommendation.

1. The mechanical design of the Figure A 4018 test fixture should be improved so that the mating of connectors is positive.

2. A caution note should be inserted in the T.O. recommending manipulation to complete the mating process.

b. Checkout and troubleshooting charts of 31x2-32-3-2 (example Figure 18-2) call for replacement of components which are soldered in. As mentioned under item 1 above, this will present an immediate impasse because of the no-soldering edict.

Recommendation.

Unless soldering is to be permitted at the SMSA, the T.O. should be revised to differentiate between those actions that are "legal" at Field Maintenance level and those which require Depot Level maintenance.

In Figure 18-2 for example, only four out of 36 actions are "legal" at Field Level.

Item 23. No maintainability requirements are defined in the Figure A.

Recommendation.

Maintainability requirements should be incorporated at the next revision.

Item 26. As stated in items 1 and 22 the maintenance concept of this equipment is severely compromised by lack of soldering capability at the SMSA.

Recommendation.

Depot Level soldering capability should be provided at the SMSA in the form of acceptably trained personnel.

MAINTAINABILITY ~~EVALUATION~~/OBSERVATION REPORT

Report No EO-1283-1 Date 19 March 1963 Page 1 of 3

Prepared by Ralph L. Stearns M/S M1-FA phone 761-4320

Figure A No. 1283 Nomen Motor-Generator Set, Launch Facility

Dwg. No. Serial No. New 154 Replaced 1786

Observed Event Maintenance Location A-8 Malmstrom AFB Date 3-16-63

Title or Description Maintenance replacement of the M-G set.

T.O. Procedures

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/E	14	Lines and Cables	4
2	Standardization	N/E	15	Fasteners	4
3	Interchangeability	N/E	16	Covers, Cases, Shields	4
4	Packaging, Mounting	N/E	17	Disposable Modules	N/O
5	Accessibility	4	18	Test Equipment	N/A
6	Work Space	4	19	Servicing, Handling, Equip.	3
7	Testing, Servicing	N/E	20	Tools	3
8	Displays	3	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	3
10	Labels, Marking	N/E	23	Figure A	N/A
11	Controls	N/E	24	Form B/C	N/A
12	Work Aids	N/A	25	Specifications	N/A
13	Connectors, Connections	4	26	Personnel Requirements	N/A

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 8: The replacement Motor-Generator, serial No. 154, had a card giving an old startup and shutdown procedure. The procedure did not agree with the T.O. or with the latest concept.

Recommendation:

The proper startup and shutdown procedure should be displayed on all M-G sets.

Item 19: The maintenance van hoist, which is supposed to lift the M-G Set out of the personnel hatch, is rated for 1300 lb with boom extended. (Boom must be extended to lift equipment out of the personnel hatch). The M-G set net weight is at least 2100 lb. This leaves the handling equipment rating 800 lb. below the minimum required rating.

Recommendation:

An adequate hoist be provided with the maintenance van.

Item 20: To remove the 3/4" hex head bolts, anchoring the M-G Set to the floor mounting frame, requires the use of a special "crows-foot."

Recommendation:

The M-G set should be removed by removing the twelve bolts holding the rubber shock mounts to the M-G Set.

Item 22: (a) Paragraphs 2-42ab and 2-43c of T.O. 21-SM80A-2-11 require the use of the maintenance van hoist to lift the M-G Set. The hoist rating is only 2/3 the required lift.

Recommendation:

Change T.O. to indicate a different hoist must be used.

(b) Paragraph 2-42g of T.O. 21-SM80A-2-11 calls for the removal of safety wire. The cable connectors have holes for safety wire, but there is no place on the M-G Set to fasten the wire. Therefore, no safety wire.

Recommendation:

Eleminate the requirement to remove non-existing safety wire.

Item 22: (Continued)

(c) T.O. 21-SM80A-2-11 requires the removal of the 3/4" hex head bolts. This requires a "crows-foot", and leaves the shock mounts on the M-G set. The M-G set with shock mounts attached will not pass through the personnel hatch.

Recommendation:

The T.O. be changed so the M-G Set is removed from the shock mounts, leaving the shock mounts attached to the mounting base.

(d) The present T.O. 21-SM80A-2-11 M-G Set removal procedure requires the use of the M-G Set dolly. This involves four or five steps.

Recommendation:

Eliminate most of these steps by not using the dolly. Lift M-G Set with hoist & move as near upper floor opening as possible. Release M-G set and move hoist to the upper floor hoist rail. Connect hoist to M-G set end bell lifting eye. Lift M-G set to upper level. (It can be done with ease and safety; we did it.)

MAINTAINABILITY EVALUATION/OBSERVATION REPORT

eport No. EO-1283-2 Date 3-22-63 Page 1 of 3

Prepared by A. H. Smith M/S 6207-1 phone 866-3761

Figure A No. 1283 Nomen Motor Generator PU-515/GSW-4

Dwg. No. 43-2028-759-1 Serial No. 0001708

Observed Event T.O. V&V Location VAFB Date 3-20-63

Title or Description Motor Generator Shutdown & Start

T.O. Procedures 21-SM80A-2-11 Paras. 2-19 thru 2-22

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/O	14	Lines and Cables	4
2	Standardization	4	15	Fasteners	4
3	Interchangeability	4	16	Covers, Cases, Shields	3
4	Packaging, Mounting	3	17	Disposable Modules	4
5	Accessibility	4	18	Test Equipment	4
6	Work Space	4	19	Servicing, Handling, Equip.	N/O
7	Testing, Servicing	4	20	Tools	4
8	Displays	N/A	21	Platforms, Stands, Shelters	4
9	Handles	N/A	22	Technical Order	4
10	Labels, Marking	4	23	Figure A	3
11	Controls	N/A	24	Form B/C	N/E
12	Work Aids	N/O	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	4

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 4. During Motor Generator Shutdown procedure, (para. 2-20 of 21-SM80A-2-11), the final act which stops the motor is withdrawal of the D.C. power cable. A caution note warns that the connector must be withdrawn with a "quick careful" motion to keep arcing to a minimum. During the shutdown observed there was no noticeable arcing, but if a real possibility of connector damage exists, an alternative circuit breaker should be added into the D.C. power circuit.

Recommendation.

A D.C. circuit breaker should be incorporated into the Control Assembly, together with an over-current protection device to guard against the possibility of a mistaken attempt to connect the D.C. supply while the motor is stationary.

Item 16. The Control Assembly access plate is secured by 41 hex-headed bolts. There is no indication in the Figure A or elsewhere that this method of securing the panel is necessary for structural or security reasons.

Recommendation.

Section 10.4.3.5.5 of MIL-STD-803 states "where space permits, hinged covers should be used to reduce the number of fasteners required". It is therefore recommended that the access plate should be replaced by hinged door-type covers.

Item 23. a. The last two sentences in the Figure A (1-4-63 revision of D2-6952 Vol. II) are as follows:

"The motor generator set shall be stopped by removing the load break type d-c. power connector and subsequently opening the primary power circuit breaker. Continuous d-c. power shall be provided to critical loads by the motor generator set when it is supplied by the primary or the emergency power source or during transfer between same."

The shutdown procedure as stated in T.O. 21-SM80A-2-11, para. 2-20 calls for removal of primary power before disconnecting the d-c power connector. There appears therefore to be a conflict between the two documents, and it is believed that T.O. 21-SM80A-2-11 contains the correct procedure.

Recommendation.

At the next revision the Fig. A should be revised to eliminate the conflicting statements.

b. The Figure A does not contain Maintainability design requirements.

Recommendation.

At the next revision Maintainability design requirements should be incorporated.

MAINTAINABILITY EVALUATION/~~OBSERVATION REPORT~~

Report No. EO-1284-2 Date March 15, 1963 Page 1 of 4

Prepared by A. H. Smith M/S 6207-1 phone 866-3761

Figure A No. 1284 Nomen Power Supply Group OA-3386/GSW-4

Dwg. No. 25-22552-36 Serial No. 2

Observed Event Location Vandenberg AFB Date 3-12-63

Title or Description Static evaluation

T.O. Procedures

MAINTAINABILITY CHECKLIST					
1	Fault Isolation	2	14	Lines and Cables	4
2	Standardization	3	15	Fasteners	3
3	Interchangeability	4	16	Covers, Cases, Shields	4
	Packaging, Mounting	3	17	Disposable Modules	N/O
5	Accessibility	2	18	Test Equipment	3
6	Work Space	4	19	Servicing, Handling, Equip.	4
7	Testing, Servicing	2	20	Tools	4
8	Displays	4	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	4
10	Labels, Marking	4	23	Figure A	3
11	Controls	N/A	24	Form B/C	N/E
12	Work Aids	N/O	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	4

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 1. Discussions with maintenance personnel at VAFB indicate that difficulties have been experienced in isolating Wiring Tray faults both on the Figure A 1284 and on other equipment utilizing the Standard Rack configuration. The frequency of such faults is very low according to the Reliability group, but when such faults do occur the fault isolation process can become somewhat lengthy. Due to the difficulty of repairing Wiring Tray faults (see items 4 and 5) it is the natural tendency to exhaust all other possibilities first, which involves a fair amount of transportation of drawers back and forth to the SMSB for drawer checkout.

Neglecting such items as manufacturing wiring errors, the principal source of Wiring Tray faults appears to be recessed drawer connector pins. During earlier phases of the operation at VAFB some of these faults were caused by the use of oversize test probes, which caused expansion and/or recession of female pins, however this difficulty was largely eliminated by procedural directive. It was felt that a "break-out box" was required to facilitate testing of the Wiring Tray and an item of ACO equipment was produced. It was not apparently fully developed, however and has not been extensively used.

Due to the basically sound alignment of the equipment drawers and to close quality control on probing, faults in Wiring Tray connectors are now very rare, but the potential danger remains that under other circumstances, the frequency of Wiring Tray faults may rise; if this did occur, considerable time wastage could result. In a bad case, where recessed pins were giving intermittent faults, for example, it is quite conceivable that down times in the order of two or three days could occur.

Recommendation.

a. If quantitative analysis of Wiring Tray faults justifies it, a "break-out box" should be added to the existing Test Equipment. The desirable features of such an item might include the following:
   1. It should possess basically the same connector positioning characteristics as the equipment drawers.
   2. The depth of insertion of the test connectors should be variable to allow detection of "recessed pins".
   3. The unit should have a high degree of adaptability to different drawers and equipment racks to reduce the number of different break-out boxes required.
   4. Consideration should be given to the possibility of producing a testing device to be used in conjunction with the "break-out box" which would avoid the necessity for utilizing pin-to-pin continuity testing. Pin-to-pin continuity testing requires analysis of the wiring bundle and must of necessity be a slow task. It is possible that connector continuity could be established by utilizing some device such as an Impedance Bridge which could detect proper

connector continuity by indicating the existence of an increase in stray capacity on those pins which are connected to a wire.

b. Suitable caution notes should be added to Organizational Maintenance troubleshooting charts to warn against direct probing of drawer or wiring-tray connectors (Note: Such cautions may already exist--the relevent T.O.'s are not available for evaluation by the writer at this time.)

Item 2. The two circuit-breaker panels of the Figure A 1284 are of a non-standard configuration. Instead of utilizing a standard drawer with rear connectors, screw-type connections are made directly to the terminals of the contact breakers, and the panels are secured directly to the frame of the rack by means of screws.

Recommendation.

To minimize replacement time, and to reduce the risk of errors in connection, the circuit breakers should be mounted in a standard drawer.

Item 4. The grouping of external electrical connectors at the top of the equipment rack is a feature of the Minuteman Standard Rack, and has been dealt with in other MEOR's. In this case, since the rack is in the Launch Facility equipment room, the accessibility problem is aggravated by the presence of a low air-conditioning duct.

Recommendation.

The Minuteman Standard Rack should be redesigned to provide better accessibility of electrical connectors.

Item 5. Due to the method of mounting drawer connectors on the Wire Tray assembly it is necessary to remove the entire rack in order to repair or replace broken or bent connector pins. According to maintenance personnel this task requires 8 hours to perform, with an additional 4 hours in preparing to do the job and getting the paperwork organized.

Recommendation.

Item 10.5.2.3 of MIL-STD-803 states "The rear of plug connectors shall be accessible for test and service, except where potting, sealing or other considerations preclude this".

In this case, since the connectors are internally mounted, there is no obvious requirement for preventing convenient access to the rear of the plug.

Except in cases where the connectors are potted, and are therefore only replaceable at SMSB or depot, all connectors on the Wire Tray assembly should be made more readily accessible than at present.

Two possibilities exist:

1. The connectors should be mounted on the front face of the wire tray assembly with sufficient slack in the wiring to permit the connector to be pulled forward and repaired in place.

2. The connectors should be mounted on hinged panels which may be swung out to permit access to the rear of the plug.

Note: It cannot readily be determined whether the rate of incidence of connector problems would justify the above changes.

Item 7. The difficulties in testing the Wire Tray assembly are dealt with under item 1 above.

Item 15. The Circuit Breaker panels and the Relay Access panel are secured to the rack by means of Phillips-headed screws.

Recommendation.

If these panels are not repackaged to a standard drawer configuration, the Phillips-headed screws should be replaced by quick-release fasteners.

Item 18. As indicated in item 1, an area of deficiency exists in test equipment for the rapid isolation of Wire-Tray faults.

Recommendation.

See item 1.

Item 23. The figure A does not contain Maintainability design requirements.

Recommendation.

Maintainability design requirements should be incorporated at the next revision.

MAINTAINABILITY ~~EVALUATION~~/OBSERVATION REPORT

.eport No. EO-1289-1/4152-2/1284-1 Date 3-14-63 Page 1 of 3

Prepared by A. H. Smith M/S 6207-1 phone 866-3761

Figure A No. 1289 Nomen Power Supply Group OA-3385/GSW-4

Dwg. No. 25-24197-40 Serial No. 2

Observed Event V&V Location VAFB Date 3-12-63

Title or Description Power Supply Checkout and Static Evaluation

T.O. Procedures 35C2-2-63-1 Section IV (Function No. 108)

MAINTAINABILITY CHECKLIST

1	Fault Isolation	4	14	Lines and Cables	4
2	Standardization	3	15	Fasteners	3
3	Interchangeability	4	16	Covers, Cases, Shields	4
4	Packaging, Mounting	3	17	Disposable Modules	4
5	Accessibility	2	18	Test Equipment	1
6	Work Space	4	19	Servicing, Handling, Equip.	N/E
7	Testing, Servicing	4	20	Tools	4
8	Displays	N/A	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	4
10	Labels, Marking	4	23	Figure A	3
11	Controls	4	24	Form B/C	N/E
12	Work Aids	3	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	4

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 2. Four of the six panels of the Power Supply rack are of a non-standard configuration. Instead of the standard practice of mounting equipment in a drawer with connectors at the rear, these items are screwed or bolted directly to the rack:

a. D.C. Circuit Breaker panel
b. Access panel
c. A.C. Circuit Breaker panel
d. Battery Charger panel

The first three items are not particularly significant because they contain very little active circuitry. In the case of the Battery Charger, PP-3028, there is little doubt that reliability considerations dictate the need for bolted terminals, but there appears to be no reason why this condition should not be met while using a standard drawer configuration. As it is, removal of the Battery Charger involves removal of the access panel, unbolting the assembly and terminals, and sliding the unit onto the handtruck.

Recommendation.

The Battery Charger PP3028/GSW-4 should be mounted in a standard drawer configuration unless reliability or economocial trade-off considerations indicate that this is undesirable.

Item 4. The Power Supply Group is mounted in a standard Minuteman Equipment rack, which results in the grouping of fourteen connectors on the top surface. As mentioned in several other MEOR's this leads to less than optimum accessibility.

Recommendation.

The rack should be redesigned to provide better accessibility to the electrical connectors.

Item 5. If it is ever necessary to change a pin in one of the jacks on the Wire Tray Assembly, it will apparently be necessary to remove the entire tray first. This would require removal of the entire rack and would place the LCC out of commission. It is estimated that this process could hardly be accomplished in less than eight hours.

The inaccessibility of jacks and wiring in the cable-tray is a feature of the Standard Minuteman Equipment Rack that may be significant in other items.

Recommendation.

a. The cable tray should be redesigned so that it is possible to repair damaged connectors without the necessity for removing the entire cable-tray. This might be accomplished by mounting the connectors on the front face of the cable-tray, with sufficient slack in the wiring to each connector to permit servicing without removal.

b. A review should be held to determine the desirability of making similar changes to other equipment cable-trays.

Item 12. See item 5 of EO-4152-1. It is not possible to remove dust covers when a drawer is located in the Fixture, Cooling Air without distorting them.

Recommendation.

The size of the access holes should be increased to allow installation and removal of dust covers while the drawer is in the fixture.

Item 15. The access panels, circuit breaker panels and Battery Charger access panel are secured by slotted screws.

Recommendation.

If the panels are not repackaged to conform with the standard method of securing panels by locking handles per item 3 above, these screws should be replaced by quick release fasteners.

Item 18. The Electrical Dummy Loads DA-304, DA-305, DA-306 (part of Fig. A 4152) were found to have transposed electrical connectors. See item 4a, of EO-4152-1.

Item 23. The Figure A does not contain Maintainability Design Requirements.

Recommendation.

At the next revision Maintainability requirements should be added.

MAINTAINABILITY EVALUATION/OBSERVATION REPORT

Report No. EO-1338-1 Date 3-8-63 Page 1 of 2

Prepared by A. H. Smith M/S 6207-1 phone 866-3261

Figure A No. 1338 Nomen Communications Control Console OA-3460/GSW-4

Dwg. No. 25-27095-2 Serial No. 4

Observed Event None Location VAFB Date 3-5-63

Title or Description Evaluation

T.O. Procedures

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/O	14	Lines and Cables	4
2	Standardization	4	15	Fasteners	3
3	Interchangeability	4	16	Covers, Cases, Shields	4
4	Packaging, Mounting	4	17	Disposable Modules	4
5	Accessibility	2	18	Test Equipment	4
6	Work Space	N/A	19	Servicing, Handling, Equip.	N/A
7	Testing, Servicing	N/O	20	Tools	4
8	Displays	4	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	N/E
10	Labels, Marking	4	23	Figure A	3
11	Controls	4	24	Form B/C	N/E
12	Work Aids	N/O	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	2

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 5. The track of the console operator's seat impedes access to five of the storage batteries. If it becomes necessary to work on the batteries the entire chair and track assembly unit must be removed, because the track is bolted down to the floor and to the five covers across which it passes.

Recommendation.

The track should be redesigned to avoid the necessity for removal when opening the battery access panels.

This could be accomplished by cutting the track into appropriate sections and mounting the sections permanently on the access covers. In this way an individual cover may be removed without disturbing the remainder.

Item 15. The telephone-transmitter control panel and the [illegible]ming and status panel are both secured to the console by Allen-headed screws.

Recommendation.

Presuming that it would be economically unsound to repackage the panels to a more standard drawer configuration, the Allen-headed fasteners should be replaced by the more conventional slotted or Phillips-headed fasteners.

Item 23. The Figure A contains no Maintainability design requirements.

Recommendation.

Maintainability design requirements should be incorporated at the next revision.

Item 26. Soldering is required to effect repair of several items in the equipment panels.

Recommendation.

a. The equipment should be repackaged to avoid the use of soldered connections.

or b. A soldering capability should be provided at the SMSA.

MAINTAINABILITY EVALUATION/~~OBSERVATION~~ REPORT

eport No. EO-3109-3 Date March 2, 1963 Page 1 of 7

repared by R. L. Stearns M/S 50-66 phone 6-6263

Figure A No. 3109 Nomen Test Set, Alarm Set AN/GSM-59

Dwg. No. 25-26827 Serial No. 2

Observed Event Evaluation Location EDL Date February 22, 1963

Title or Description

T.O. Procedures

Fault Locator Alarm Set TS-1606/GSM-59 Serial No. 2
Test Set Group, Antenna, OA-3801/GSM-59 Serial No. 2
Test Set, Antenna Calibration TS-1824/GSM-59 Serial No. 16

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/E	14	Lines and Cables	4
2	Standardization	4	15	Fasteners	3
3	Interchangeability	4	16	Covers, Cases, Shields	3
4	Packaging, Mounting	3	17	Disposable Modules	N/E
5	Accessibility	3	18	Test Equipment	N/A
6	Work Space	N/E	19	Servicing, Handling, Equip.	N/A
7	Testing, Servicing	N/A	20	Tools	3
8	Displays	N/E	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	4
10	Labels, Marking	3	23	Figure A	3
11	Controls	3	24	Form B/C	4
12	Work Aids	N/E	25	Specifications	4
13	Connectors, Connections	4	26	Personnel Requirements	N/A

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 4 - Packaging, Mounting

A. To remove the Fault Locator Alarm Set Chassis from the suitcase two men must lift the chassis out of the suitcase while a third person holds the suitcase in place.

Recommendation:

Per MIL-STD-803 paragraph 10.4.3.5.2 "Where possible, cases shall be designed to lift off units rather than units lifted out of cases."

B. To replace any of the diodes or transistors on assembly A-8 part no. 29-26783-1 requires the removal of the assembly. Special length phillips head screwdrivers are required to accomplish this task.

Recommendation:

Per MIL-STD-803 paragraph 10.4.3.7.3 "Field removable assemblies and units shall be replaceable with nothing more than common hand tools."

C. To assemble chassis and their suitcases requires the use of drift pins or equivalent to align the units.

Recommendation:

Per MIL-STD-803 paragraph 10.4.3.7.5 "Guide pins or their equivalent shall be provided on units for alignment during mounting."

D. There is no easy method of discerning the orientation of the chassis and the suitcases.

Recommendation:

Per MIL-STD-803 paragraph 10.4.3.5.1 "The proper orientation of a unit within its case shall be made obvious, either through design of the case or by means of appropriate labels."

E. The shoulder strap for the Test Set Antenna case has no defined storage area. Thus the strap becomes tangled with the cables stored in the same suitcase.

Recommendation:

Provide a defined storage space for the shoulder strap.

F. The antenna adapter, part of the Test Set Antenna, is difficult to remove from its storage space.

Recommendation:

The fasteners should be changed to easily operated quick release type.

G. The cable storage area for the Antenna Calibrator Set is so small it is very difficult to make it contain the cables.

Recommendation:

Adequate storage space be provided.

Item 5, Accessibility

A. Wire bundles located directly over terminal boards TB1, TB2, TB3, TB4, TB5, and TB6 make the terminals inaccessible.

Recommendation:

Relocate the wire bundles so the terminals are accessible.

B. The position of the retaining bolt on the lower clamp of Capacitor C2 of the Fault Locator Alarm Set makes it impossible to loosen the clamp without the use of a special tool.

Recommendation:

Per MIL-STD-803 paragraph 10.4.3.7.3 "Field removable assemblies and units shall be replaceable with nothing more than common hand tools."

Item 10, Labels, Marking

A. It is difficult to determine which plug-in circuit board in the Fault Locator Alarm Set goes into which receptacle.

Recommendation:

Label the circuit boards and the receptacles with reference designations in accordance with MIL-E-4158C paragraph 3.6.2, and MIL-STD-130B paragraph 4.2

Item 10 (Continued)

B. All of the suitcases were over forty-five pounds but were not labeled with their weight.

Recommendation:

Per MIL-STD-803 "All units weighing 45 pounds or more shall be permanently labeled with their weight."

C. The front panel of the Fault Locator Alarm Set has a Test Selector Switch and a Test Selector Indicator on it. The Indicator has two scales label "A", (outer scale) and "B" (inner scale). The Test Selector is labeled "O Read outer scale" and "© Read inner scale."

Recommendation:

Per MIL-STD-803 paragraph 5.1.7 "abstract symbols (squares, Greek alphabet, etc.) will not be used as labels. Common meaningful symbols such as the percent sign, plus sign, etc., are acceptable."

D. The Fault Locator Alarm Set Function Selector switch has "R/T" used as an abbreviation for Receiver Transmitter.

Recommendation:

When abbreviations must be used conform to MIL-STD-12.

E. The cable storage areas of the test set do not have cable inventories or location placards. Nor does the test set have a cable inventory. Due to the lack of cable inventory placards Boeing has been losing cables at Malmstrom AFB.

Recommendation:

A cable inventory placard be fastened to each cable storage area.

F. The abbreviation "NS" is used on the Test Set Group, Antenna. It is believed this means "Nano-second" but MIL-STD-12B gives the following meanings:

(1) National special (thread)
(2) Near side
(3) Nickel steel

F. (Continued)

Recommendation:

Conform with MIL-STD-803, paragraph 5.1.4 "Abbreviations, where required, shall be common or meaningful and shall conform with MIL-STD-12 and ANA Bulletin 261."

G. The labels for terminal boards TB1 and TB2, part of the Antenna Calibration Set, are under the wires going to the terminal boards.

Recommendation:

Conform to MIL-STD-803 paragraph 5.2.4 and MIL-STD-130B paragraph 4.2.

Item 11, Controls

A. The Function Selector Switch, part of the Alarm Set Fault Locator, has its stop located two steps beyond the last labeled function.

Recommendation:

Refer to MIL-STD-803 paragraph 9.6.5.5.3 "Provide stops at the beginning and end of the range of control positions if the switch should not be operated beyond the end positions or specified limits."

B. The Phase Shifter adjustment control, part of the Antenna Test Set Group, does not operate freely and smoothly without binding, and is hard to set accurately.

Recommendation:

Refer to MIL-E-4158 paragraph 3.2.5.2 "Mechanical operations - Play and backlash shall be held to the minimum and shall not cause poor contact or inaccurate setting. Controls shall operate freely and smoothly without binding, scraping, or cutting; controls shall be lubricated when lubrication does not interfere with operation. Continuous positioning, circular, pointer type knobs shall be used for discrete positioning operations."

Item 15, Fasteners

A. The selector switches, part of the Alarm Set Fault Locator, are fastened to the front panel by means of high torque screws. To remove these screws requires a high torque type screw driver.

Recommendation:

Refer to MIL-STD-803 paragraph 10.4.3.7.2 "Whenever possible, identical screw and bolt heads shall be used. This is to enable various panels and components to be removed with one type of tool." Also refer to MIL-E-4158 paragraph 3.2.31.1 "Standard tools. Without detracting from design, standard tools shall be used to the greatest extent practicable (standard tools are tools, normally hand tools, manufactured by two or more recognized tool companies). Type and variety of tools shall be kept to the absolute minimum."

B. The cable straps, on the cables stored in the Antenna Test Set Group suitcase, are made of a material which is not compatable with the type of buckle used. The buckle cannot be kept tight.

Recommendation:

Change material or type of buckle, so the straps can serve their function.

Item 16, Covers, Cases, Shields

A. The test points located on the front panel of the Alarm Set Fault Locator, have multi-turn covers. These covers decrease the accessibility of the test points.

Recommendation:

Use a quick-disconnect type dust cover to increase the accessibility.

B. Many of the cable connectors do not have protective covers.

Recommendation:

To decrease the cable connector damage provide all cables with protective covers.

C. The six time-delay toggle switches, part of the Antenna Simulator, have protective covers.

Recommendation:

To lower the cost and increase the operability change the switches to toggle switches without protective covers.

Item 20, Tools

See Item 15 paragraph A.

Item 23, Figure A

The Figure A does not contain Maintainability Design Requirements. In accordance with AFBSD Exhibit 61-56 Maintainability Design Requirements must be included in the Figure A's for all OGE and MGE Minuteman equipment for which Boeing is responsible.

Recommendation:

When the Figure A is revised, Maintainability Design Requirements should be added.

MAINTAINABILITY ~~EVALUATION~~/OBSERVATION REPORT

Report No. EC-4043-3 Date March 29, 1963 Page 1 of 3

Prepared by A. H. Smith M/S 6207-1 phone 866-3761

Figure A No. 4043 Nomen Elevator Work Cage (New Model)

Dwg. No. 25-18099-1 Serial No. 4

Observed Event Proof Loading Location VAFB Date March 26, 1963

Title or Description

T.O. Procedures

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/O	14	Lines and Cables	3
2	Standardization	4	15	Fasteners	4
3	Interchangeability	4	16	Covers, Cases, Shields	2
4	Packaging, Mounting	3	17	Disposable Modules	N/O
5	Accessibility	4	18	Test Equipment	N/O
6	Work Space	N/A	19	Servicing, Handling, Equip.	N/O
7	Testing, Servicing	N/O	20	Tools	4
8	Displays	N/A	21	Platforms, Stands, Shelters	N/A
9	Handles	2	22	Technical Order	N/E
10	Labels, Marking	3	23	Figure A	N/E
11	Controls	4	24	Form B/C	N/E
12	Work Aids	N/O	25	Specifications	N/E
13	Connectors, Connections	3	26	Personnel Requirements	3

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 4. Traversing of the hoist mechanism is effected by a knurled drive wheel. On the equipment observed, the knurling was becoming smooth, even though it is a comparatively new item. If the wheel is prone to losing its roughness, difficulties in traversing the elevator may result.

Recommendation.

The traverse drive-wheel knurling (or "tread") should be cut deeper.

Item 9. The hoist mechanism is not provided with handles, and it is a fairly heavy item. The use of connectors, cables, and mechanical protrusions as grasp areas is very likely to result in equipment or personnel damage.

Recommendation.

Suitable handles should be provided in accordance with section 10.4.3.2 of MIL-STD-803, to allow two-man lifting of the unit. Since the unit is mechanically asymmetrical, the location of the handles is quite important, and should facilitate both installation and bench handling.

Item 10 a. There were no weight labels on the units observed, although both work-cage and hoist mechanism appear to weigh more than 45 lbs.

Recommendation.

The units should bear weight labels per section 10.4.3.1.1 of MIL-STD-803.

b. The labeling of the control box in the work cage remains ambiguous. If the operator is facing the missile, he is then in a position to read the control button labels "right way up"; the left button, however, would cause the cage to traverse to his right. If he faces the wall, the left button would cause the cage to traverse left, but he would be reading the labels upside down.

Recommendation.

The labels should be turned around so that they are consistent with direction of motion, and arrows should be added to the labels to remove any remaining ambiguity.

Item 13. The connectors employed are the multiple-turn variety.

Recommendation.

Single-turn, quick release type connectors should be employed.

Item 14. Due to the lack of handles, loose cables on the hoist mechanism provide attractive grasp points. Such usage would certainly result in damaged cables.

Recommendation.

If a suitable protective cover can not be provided for the hoist mechanism (see item 16) the loose cables should be cleated down or protected by other means.

Item 16 a. The elevator hoist assembly is not provided with a protective cover. Cables, connectors and mechanical devices (such as the level wind mechanism) are therefore liable to handling damage as well as to the harmful effects of exposure to dirt.

Recommendation.

A robust, easily removable, protective cover should be added to the elevator hoist mechanism.

b. J1 and J2 on the hoist mechanism, and a connector on the Jack-box in the work-cage, were provided with loose plastic dust-caps.

Recommendation.

Captive dust caps should be provided.

Item 26. In the new work-cage configuration, the electrical control and communications conductors are no longer incorporated into the hoist cable, but are carried in a pendant cable which is stowed in a canvas bag at the side of the work-cage. This arrangement calls for the work-cage operator, or the second passenger, to stow the cable in the bag as the work-cage rises. This arrangement could be undesirable if the operator were in a situation calling for his undivided attention.

Recommendation.

This cannot be considered as a serious objection, because it would probably do no harm to allow the cable to remain "un-furled" if the operator was unable to attend to it. It is conceivable, however, that the loose cable could be hazardous under especially difficult conditions, and it is therefore recommended that a cable-reel be incorporated on the work-cage to take up the slack automatically.

MAINTAINABILITY EVALUATION/[redacted] REPORT

Report No. EO-4489-1 Date 3-4-63 Page 1 of 4

Prepared by A. H. Smith M/S 6207-1 phone 866-3761

Figure A No. 4489 Nomon Message Generator MX3625/GSM-62

Dwg. No. 8324447 Serial No. 5

Observed Event Evaluation Location VAFB Date 3-1-63

Title or Description

T.O. Procedures

MAINTAINABILITY CHECKLIST

1	Fault Isolation	N/O	14	Lines and Cables	4
2	Standardization	4	15	Fasteners	3
3	Interchangeability	4	16	Covers, Cases, Shields	3
4	Packaging, Mounting	2	17	Disposable Modules	4
5	Accessibility	4	18	Test Equipment	N/E
6	Work Space	N/A	19	Servicing, Handling, Equip.	N/A
7	Testing, Servicing	N/O	20	Tools	N/A
8	Displays	4	21	Platforms, Stands, Shelters	N/A
9	Handles	4	22	Technical Order	N/E
10	Labels, Marking	3	23	Figure A	N/E
11	Controls	4	24	Form B/C	N/E
12	Work Aids	N/O	25	Specifications	N/E
13	Connectors, Connections	4	26	Personnel Requirements	2

CHECKLIST RATINGS

4	Good Maintainability	N/A	Not Applicable
3	Satisfactory Maintainability	N/O	No Observation Possible
2	Unsatisfactory Maintainability	N/E	Not Evaluated
1	Poor Maintainability		

Rating analyses are provided on succeeding pages, for all checklist items rated 3 or lower.

Item 4a. Section 10.4.3.5.2 of MIL-STD-803 states "where possible, cases shall be designed to lift off units rather than units lifted out of cases." The reasoning behind this statement is probably as follows:

a. The case is generally much lighter and more manageable than the unit.
b. If a heavy unit is lowered into a case and a component or cable snags on a projection, damage will probably occur before the resistance is felt; for example a wire might be severed without even noticing the slight tug.
c. If the unit slips from the operators grasp while lowering, damage may result due to the fall, whereas if the case slipped while lowering it onto the unit it would be less likely to cause damage.

In this particular instance, the front panel of the unit is recessed into the case; the two carrying handles, however, project outwards beyond the edge of the case, and it is possible to rest the unit on these two handles while lifting the case off. This procedure is somewhat hazardous because the handles are short and have rounded ends; it is therefore quite likely that the unit would topple and fall as the case came free. For an illustration see Fig. 4-113, page 4-318 of T.O. 21-SM80A-4-1. It may be that the design intention was to slide the unit out of its case while resting flat, however this is not too desirable because the case is larger than the unit and is not provided with guide rails; thus, if the front panel screws are removed before removing the two hex-headed bolts at the rear, the unit drops as the rear bolts are undone. If the rear bolts are removed first the weight of the unit is supported entirely by the front panel screws and may cause the last one or two screws to break or bind.

The natural tendency is to remove the rear bolts first, then raise the unit to rest on the rear surface while removing the front panel screws, then lift the unit out of the case; the easiest installation procedure is the reverse of this process, which is susceptible to the hazards mentioned above.

Recommendation:

It is clear that a complete repackaging of the unit would be prohibitively costly, and would not be justified. Two alternatives remain:

a. The case and unit should be provided with suitable guide rails to permit withdrawal of the unit while the case is lying flat.
b. That part of the case which houses the unit (excluding the end-section which is used for cable-storage) should be divided transversely into two sections, so that the upper section could be removed with the unit lying flat. The unit could then be turned over to remove the bottom section, as is the procedure with most of the suitcase test equipment.

Item 4 b. The brackets on the case into which the panel mounting screws fasten tend to catch on a wire bundle as the unit is inserted into or withdrawn from the case.

Recommendation:

The wire bundle should be fastened down so that it does not project outwards from the chassis.

c. The cables for the unit are stowed in brackets and clamps on a hinged panel in the lid of the unit. The cable scrape on the quick-release fastener brakets when the panel is opened, and the panel will not remain open while the cables are disengaged. Because the weight of the cables is greater than the weight of the lid, the device falls over and closes itself.

Recommendation:

The cables should be stowed in the lid, not on the hinged plate. The hinged plate should also hold itself in the open position.

Item 10 a. The weight of the unit is not displayed, although it appears to be more than 45 pounds.

Recommendation:

A weight label should be affixed.

b. As is the case with almost all Figure A equipment sold to Air Force at VAFB, adhesive labels have been affixed showing the Figure A number.

Recommendation:

A permanent label should be affixed to all equipment, showing Figure A number and (where applicable) an inventory of associated cases.

Item 15. The chassis is held in the case by eight slotted screws on the front panel and two hex-headed bolts at the rear. The process of removing and replacing the unit is unnecessarily lengthy.

Recommendation:

The two bolts at the rear of the unit should be eliminated and replaced by guide pins only. If it is considered necessary to retain the bolts for structural purposes, they should at least be of the slotted-head variety.

Item 16 a. The proper orientation of the unit in the case is not obvious; it will apparently go in either way. The lid is also apparently reversible.

Recommendation:

If there is any requirement for unique orientation of chassis, case, and lid, some identification marks should be provided.

b. Both connectors on the panel of the unit are fitted with loose plastic dust caps.

Recommendation:

The dust caps should be of the captive variety.

Item 26. As far as could be determined, all electrical connections in this unit are soldered. Since even the Printed Circuit Assemblies are soldered in, it would appear that this unit is not suitable for Field-level maintenance.

Recommendation:

a. The PCA's should be changed to the plug-in variety. This would provide at least partial Field-level maintenance capability.

b. The unit should be unitized according to MIL-STD-803 section 10.2 either by replacing soldered connections with screwed or wrapped connections, or by providing plug-type break-points between units.